SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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Original Correspondence.

MINING ON THE PACIFIC COAST.

The district of Panamint, in Inyo county, has recently become the focus of great mining excitement, to which numbers of miners from all parts of the State, but especially from Southern California, have converged. The village of Jonestown, at an elevation of 6200 feet, has already sprung up in the vicinity of the mines with extraordinary rapidity, and the roads leading to it are thronged with teams and men. The mountains in the vicinity of the town are extremely precipitous, the canyon in which Jonestown is situated allowing only 300 ft. at the widest points for building purposes, so that the formation of roads on the sides of the opposite mountain by means of blasting often causes heavy pieces of rock to be thrown into the town, to the consternation of the inhabitants. The approach by the new road from San Bernardino to Panamint is almost impracticable, the sand being so heavy that the brake blocks of wagons often drag the ground for a considerable distance at a time. The mines have been sufficiently developed to warrant the belief that they are very rich, and some of our heavy capitalists have invested largely in them, and it is generally thought that south-eastern California will some day contest the title of "Silver State" with Nevada. The ore is quartz, containing silver, copper, some lead, and a little gold. Jones and Co. have already shipped considerable quantities of the ore *via* Wilmington and Panama to eastern smelting establishments, though active operations will not commence until the warm weather in the spring. The ore, which assays all the way from $100 to $3000 per ton, is also shipped to Liverpool for reduction; to convey it by steam to Spadra, the terminus of the railroad, costs $30 per ton, and from thence the Pacific Mail Steamship Company take it to Liverpool for $25 per ton of 2000 lbs., making the total freight $55 per ton; it is mined and sacked for about $15 per ton, as the ledges are wide and large. The ore contains from 10 to 30 per cent. of copper, so by shipping it to Liverpool the miners get from $15 to $45 per ton for the copper alone; if worked here this profit would be lost, while by shipping it nearly pays freight. The great difficulty experienced in bringing in provisions, timber, &c., makes the rate of living very high, and miners are paid the exceptional wages of $4 per day. As a certain accompaniment to every newly-formed American town or village, a newspaper has been started, and building lots are continually changing hands at prices varying from $500 to $1000. The new mineral discoveries on the Skykomish, in Snohomish county, Washington territory, have caused a good deal of excitement on that part of the Pacific Coast, and it is reported that the assays from four or five well-defined and extensive quartz ledges indicate prospects fully equal to Washoe or White Pine. These mines are about 60 miles from Seattle, and the way to them for the most part navigable by water. Should they turn out all that is anticipated, it will have the effect of attracting a large population to a remarkably fine country, which at the present time sorely needs it.

The work on the Sutro Tunnel is being pushed forward with great rapidity, 7792 ft. of it having been completed to Nov. 1. During the month of October from 80 to 83 ft. of the tunnel, which is 10 × 14, was made for the first three weeks, and 116 ft. during the last week in that month, making a total of 360 ft. in a single month, which is the heaviest work recorded in the history of the enterpise. This is to be attributed to the use of the Burleigh Drill, which has recently been introduced into this part of the country; by its use the work of tunnelling becomes easy compared with the *modus operandi* that previously existed, and undertakings that could not be accomplished with the old appliances are successfully and cheaply performed by the Burleigh Drill. Had the Hoosac Tunnel been confined to hand labour it would have required five years longer to have finished it; the average progress in that tunnel under the old system was 49 ft. per month, but upon the introduction of the Burleigh Drill the work progressed at the rate of 150 ft. per month, and at a greatly reduced cost. The Nesquehoning Tunnel, at Manch Chunk (Pa.), which is 3600 ft. long, was completed in 22 months by the use of the Burleigh machinery.

Several of the leading mining companies on the Comstock Lode have attained a depth of 2000 ft. The Savage Company have broken ground for new machinery, which is to be sufficiently powerful to sink their main incline to a depth of 4000 ft.; this incline is at present some distance below the 2100-ft. level, but the machinery now used is inadequate to carry on the work much longer. Other leading companies are on the point of erecting similar powerful works for the purpose of penetrating the hidden depths of this famous silver lode. Among the remarkably rich mines that here exist may be mentioned the Consolidated Virginia, which is at present attracting considerable attention from the richness of its developments, and the high prices its stock fetches in the market at the present time. Indeed, the stock market to-day is commanding a higher figure by at least from $10,000,000 to $15,000,000 than it did during the great excitement of 1872. Consolidated Virginia, Ophir, and California are selling in the aggregate at nearly $40,000,000, while the entire market may be placed at about $100,000,000. A well-known and reliable expert, who lately visited these mines for the purpose of examining and reporting on them, declares that so far from the Comstock being exhausted, the indications of its permanence and inexhaustible extent are greater to-day than at any previous period of its history. He states that from what he has seen he is satisfied that the lode would not be worked out for 50 years, that the yield of bullion would increase annually, and that the Comstock would only be abandoned when the shaft had reached as great a depth as it was possible to penetrate by means of modern machinery and engineering. It is manifest to all observers that our mining interest generally are placed on a solid basis, and that the days of "wild cat" enterprises are for ever gone. The heavy rains which have set in so early this year promise ample supplies for the working of those gravel mines which have not an abundant supply of that necessary element, and mining operations throughout the country appear to be attended with an unusual degree of success and prosperity. Indeed, it is the exception to hear of such disasters which in former years made mining to any extent too speculative and unsafe. A thorough knowledge of the country and its vast resources, the appliances of modern skill and invention, and the great number added to our mining population, who are ever on the look out for new discoveries, readily contribute to determine the value of mining enterprises, and to give assurance to those engaged in them. The large number of rich men, many of them millionaires, who are directly or otherwise interested in our mines from whence they have derived their wealth, is a proof that the business of mining is no longer the fluctuating and haphazard pursuit of former years, but a legitimate, safe, and a very profitable pursuit, if entered into with prudence, and carried out with ordinary wisdom.

Two separate mining Bills of importance are before the Congressional Committee on Mines and Mining. The first provides for an extension of one year's time for the performance of a certain amount of work to enable mineowners to comply with the law now in existence for the perfection of title. The other Bill is intended to establish the fact that labour and money, to be expended upon a tunnel which is bored for the purpose of tapping a ledge, shall be considered as part of the work which the law requires shall be done upon a mine in a given period. Mr. Skidmore, the Deputy United States Commissioner of Mining Statistics, has recently visited Sierra county, and includes in his report an interesting account of the "drift claims" which were formerly successfully worked in that section of the country, but have for some time past been abandoned. One of these claims, the Bald Mountain, on Forest Hill, had formerly been most successfully worked; the total product of the mine from the date of opening it to the suspension of operations having been not less than $1,000,000. Subsequently a practical miner resumed work on the neglected ground, and he has been fortunate enough to work the "drift claim" with such success that at the period of Mr. Skidmore's visit $345,079 had been taken from a piece of ground about 1000 ft. long by 500 ft. wide. It may be interesting to note the difference that exists between this species of mining and hydraulic mining. In the latter the entire face of the bank is removed by the pipe. In drift claims only the lower stratum of gravel lying on the bed rock is mined and washed. The average depth of pay gravel when mined in this manner is about 3 ft., and it is extracted by means of tunnels and gangways or galleries, and by washing the dirt in sluices; this system is rendered necessary in consequence of the capping of volcanic matter overlying the ancient channels, and rendering hydraulic operations impossible. The Reddington Quicksilver Company have been recently erecting extensive buildings, and adding new machinery of an improved style on their mines. Formerly the amount of their monthly shipments was 600 flasks, but this has now been increased to 1000; further improvements on their works will enable them eventually to make still larger shipments of quicksilver.

San Francisco, Nov. 28.

THE MINING INDUSTRIES OF CLEVELAND.

By RICHARD MEADE, Assistant-Keeper of Mining Records.

The existence of an iron ore on the South-Eastern coast of Yorkshire appears to have been long known; indeed, the constant discovery of iron slag on the hills of Cleveland shows clearly that the ores were worked in a remote antiquity. About a quarter of a century since some local ironmasters began to employ the Cleveland ore to supplement the supply of ores to their furnaces. It answered well, and when the increased demand for iron ore stimulated enquiry it was found that the Cleveland hills were full of iron. Then began that remarkable development of this district which can scarcely find a parallel in the history of any British industry. The main ironstone seam of Cleveland occurs at the top of the Middle Lias or Marlstone rock, and consists of beds of ironstone, interstratified with beds of sandstone and shales. At Eston, near Middlesborough, it attains its maximum thickness of from 12 to 17 ft. At the top of the main seam occurs the well-known Pecten bed (*Pecten Æquivalvis*), and at the bottom the equally well-known Avicula bed, in which *Avicula Cygnipes* occurs in great profusion, so called from the presence of these fossil shells. *Ammonites spinatus* and *Ammonites margaritatus* accompany these shells in the Upleatham area. The same strata in the neighbourhood of Grosmont attains a thickness of 12 ft. of workable ironstone, but with shaley partings of nearly 30 ft. in thickness, thinning out towards the south, where at Felix Kirk, near Thirsk, it has been proved to exist only in beds of 6 and 7 in., with partings of 3 ft.

The main seam of Cleveland has a thickness at Upleatham, and at the Chaloner mines, near Guisborough, of 13 ft.; at the Normanby mines, of 11 feet; at Whitecliffe, near Saltburn-on-the-Sea, and Liverton mines, near Brotton, of 9½ ft.; and at Ailesbury, near North Allerton, of 5 ft. Below the Marlstone (at the top of which is the ironstone bed) succeeds the Lower Lias, and immediately above occur the shales of the Upper Lias, in which exist in the neighbourhood of Whitby the beds of alum-shale and jet which have given rise to those important industries of which Whitby may be regarded as the centre. Above the Upper Lias, and situated at the base of the sandy estuarine beds of the Inferior Oolite, occurs the top seam of ironstone known as the "dogger bed," and which has, and still is, acquiring much practical importance from its highly magnetic character in the Rosedale Abbey mines, where the seam is upwards of 20 feet thick. This top seam is regarded as the equivalent of the Northampton sand, and yields a much higher percentage of metallic iron than that of the main or Marlstone seam of Cleveland. The Cleveland district has an area of not less than 500 square miles, and reliable authorities affirm that every square acre of this vast area yields, on an average, not less than 20,000 tons of ironstone. The system of working is both by drift, driven in from the outcrop, and by shafts, which are sunk in places dependent upon the position of the ironstone, which is wrought by the bord and pillar system.

The magnitude of the operations developed with such marvellous industry in this important district are of such a nature that it will be interesting to follow their rise and progress. In the year 1854 a return of the production of ironstone was published in the "Mineral Statistics of the United Kingdom;" in that year 650,000 tons were raised from the mines of Cleveland, and in the following year—1855—the production of pig-iron was recorded as 84,500 tons, the make of 21 blast-furnaces; in the same year the output of ironstone was 970,300 tons; in 1860 and 1865 the quantity raised increased from 1,471,319 tons to 2,762,359 tons, and in 1870 it reached 4,072,888 tons, while in the years following, 1871, it rose to 4,581,901 tons; in 1872, 4,974,950 tons; and in 1873 the output of ironstone was 5,617,014 tons, or an average weekly production of 108,000 tons, the production of the United Kingdom being 15,577,499 tons, of which Cleveland contributes 36 per cent. Of the ironstone raised in 1873 it is estimated that 2,955,000 tons were used in the blast-furnaces of the Cleveland district; of the remainder upwards of 32,000 tons were sent into Northumberland, 2,360,000 tons to Durham furnaces, 150,000 tons to the West Riding of Yorkshire, while the destination of the remaining 120,000 tons is not ascertained.

For comparison the detailed produce of the mines is given for the years 1865 and 1873. In the latter year, of the 47 mines in the district 36 were raising ironstone, and the whole employing a population of 9350 persons in and about the mines.

Mines.	1865.	1873.
Ailesbury ..... Tons	—	87,948
Belmont	175,894	134,965
Birds and Birtley	13,247	—
Brotton	113,160	375,331
Boosbeck	—	4,785
Carlin How	—	4,523
Chaloner	—	100,513
Coate Moor	—	9,000
Cliff	—	85,545
Cragg's Hall	—	169,507
Esk Valley	—	18,847
Eskdale Side	—	19,418
Eston	685,980	705,228
Glaisdale	—	10,920
Grosmont	68,091	101,815
Hays	6,420	—
Hollins	16,055	—
Huntcliffe	—	173,221
Hutton Low Cross	39,867	—
Kirkleatham	—	19,521
Liverton	—	278,108
Lofthouse	17,688	392,748
Margrave Park	—	110,017
North Loftus	—	94,583
Normanby	139,418	221,485
Ormesby	—	64,487
Park	—	176,238
Port Mulgrave	144,000	156,801
Rosedale (East and West)	250,000	560,669
Skelton	180,753	165,280
Spa	9,076	109,649
Spa Wood	36,694	77,239
Slapewath	—	52,000
South Belmont	54,952	125,830
South Skelton	—	133,493
Stanghow	—	93,014
Upleatham	717,998	550,930
ditto (Hob Hill)	93,366	160,430
Whitecliffe	—	72,885
Woodfield	100	—
Total ..... Tons	2,762,359	5,617,014

The Cleveland ironstone of the main seam yields of metallic iron an average of 30 per cent., increased by calcination to 40 per cent. The magnetic ore of Rosedale gives nearly 50 per cent., and is principally sent into Durham to the Ferryhill Ironworks. About 70 cwts. of raw stone is required for each ton of pig-iron made, but with the 2,955,000 tons of native ironstone used there was also imported into the district 430,000 tons of Northamptonshire ore, 58,000 tons of foreign hematites, and upwards of 50,000 tons of hematite from Lancashire and Cumberland, from which admixture of ores the hematites averaging from 50 to 66 per cent. of metallic iron, the quantity of ore employed in making a ton of pig-iron did not exceed 60 cwts.

PIG-IRON.—In 1855 the make in Cleveland, independent of the Durham furnaces, was 84,500 tons, the production of 21 furnaces; in 1860, with 25 furnaces in blast, the make was 248,665 tons; while in 1865, with 53½ furnaces in blast, there was made 486,421 tons, showing an increase cent. per cent. in five years. In 1870 the ratio of production is maintained, 67 furnaces giving 916,970 tons; again in 1871 the yield of 70 furnaces was 1,029,885 tons; in 1872 the production of 73¾ furnaces amounted to 1,122,114 tons, with a consumption of 2,533,781 tons of coal, or an average of 47 cwts. of coal to each ton of pig-iron made; while in 1873 the 76 furnaces in blast, of which the following is a list, gave a production of 1,156,431 tons of pig-iron.

Names of works.	Owners.	Furnaces built.	Furnaces in blast.
Ayresome, Middlesborough.	Gjers, Mills, and Co.	4	4
Cargo Fleet, ditto	Swan, Coates, and Co.	4	4
Carlton, Stockton-on-Tees	N. of England Industrial Iron and Coal Company (Limited)	3	3
Clay Lane, Eston Junction	Thomas Vaughan and Co.	6	6
Coatham, Middlesborough	Downey and Co.	2	2
Middlesborough Cleveland Witton Park	Bolckow, Vaughan, and Co. (Limited).	15	15
Glaisdale, Yarm.	S. Cleveland Ironworks Co. (Limited).	3	3
Grosmont, Whitby	Chas. and Thos. Bagnall, jun.	2	2
Lackenby, Middlesborough	Lackenby Iron Company	3	3
Linthorpe, ditto	Lloyd and Co.	6	6
Newport, ditto	B. Samuelson and Co.	8	8
Normanby, ditto	Jones, Dunning, and Co.	3	3
Ormesby, ditto	Cochrane and Co.	4	2
South Bank, ditto	Thomas Vaughan and Co.	6	6
Tees, ditto	Gilkes, Wilson, Pease, and Co.	5	5
Tees Side, ditto	Hopkins, Gilkes, and Co. (Limited)	4	4

With a consumption of 2,643,997 tons of coal, or an average of 46 cwt. of coal (being the equivalent of Durham coke, which is principally used in the district) to each ton of pig-iron made, the average yield of the coal being 60 per cent. of coke.

MILLS AND FORGES.—In the Cleveland district in 1872 there were 11 works engaged in the manufacture of malleable iron of various kinds, and an aggregate of 492 puddling furnaces, and 36 rolling mills. In 1873 the same works had 508 puddling furnaces, and 29 rolling mills in operation; and at the Bessemer converting works of Messrs. Bolckow, Vaughan, and Company (Limited) four converters, each having a capacity of 6½ tons. There are no data available to show the quantity of malleable iron and steel made, but it is stated, on the authority of Mr. I. Lowthian Bell, before a committee of the House of Commons in 1873, that a puddling furnace will make 500 tons of bars or rails per annum, consuming 1200 or 1300 tons of coal; this will afford an approximation of the consumption of coal in this important branch of our industries amounting in 1872 to about 640,000 tons, and in 1873 to 660,000 tons. It is also stated, on the same authority, that while the average yield of each furnace in 1863 was 8000 tons of pig-iron, that at the present time, from their having been rebuilt, and their capacity increased, the production is nearly doubled, and this statement is borne out by the returns of 1873, which give an average make of each furnace of 15,216 tons. The proportion of make of pig-iron in Cleveland is 17½ per cent. of the production of Great Britain.

A new era will be inaugurated when the Cleveland Extension Mineral Railway (of which the first sod was turned a few weeks ago) shall be completed, forming an important link in the railway system of the district, commencing by a junction with the North-Eastern Railway, 2½ miles south-east of Saltburn-by-the-Sea, and passing through Skelton and Moorsholm to Gerrick, Liverton, and Danby Low Moor, and thence through the Normanby estate and the Valley of Greenholme Beck to the Valley of the Esk, where a junction will be formed with the North Yorkshire and Cleveland Railway near Glaisdale, thus opening up this important district, and yielding increased resources of ironstone to the blast-furnaces of this and neighbouring districts.

The statement of the Cleveland Ironmasters' Association, recently issued, shows that during 1874 the Loftus Iron Company and Messrs. Robson, Maynard, and Co. have each blown in two furnaces at their works at Loftus and Redcar, while at the latter and the Grosmont Works new furnaces are in course of erection. Again, in Durham, at Teesbridge, Stockton, and West Hartlepool new companies have commenced the manufacture of pig-iron with two at each of the first named, and three furnaces at the latter works; while at Cargo Fleet, Ferry Hill, Tees-side, Wear, and Wilton Park Works each of the companies have one furnace building, and the Messrs. Bell Brothers two, at Clarence, in course of construction, in addition to their two furnaces blown in in October last.

The returns for 1874 will, therefore, be looked for with much interest, and cannot fail to exhibit a great increase in the production of iron ore and pig-iron in Cleveland.

THE NORTH WALES QUARRYMEN'S STRIKE.

SIR,—I should be extremely sorry to misrepresent any of the circumstances attending the strike at the Penrhyn Quarries, and regret to find that Mr. Pennant Lloyd thinks I have done so in my previous letter with regard to the committee setting in judgment on the quarry managers. I fully appreciate the difficulty in which Mr. Lloyd found himself placed when acting as middleman between Lord Penrhyn and the quarrymen's strike committee, and I can well understand that when feeling called upon to consent to act as referee or arbitrator between the managers and the men he would desire to be relieved from the investigation of frivolous grievances, and that to avoid this he was induced to concur in the suggestion of the committee that two or three experienced workmen should investigate each case before submitting it to him, but it can scarcely be denied that his acquiescence in this suggestion did, in fact, give to this committee of investigation a quasi-judicial character, which ended in their assuming that of official prosecutors on behalf of the quarrymen at large of all complaints against the managers, and that such appointment so sanctioned was calculated to destroy the independence and authority of the managers, and lead to the very difficulties which have since ensued. That Mr. Pennant Lloyd anticipated such a result no one who knows him can suppose, and will feel that he acted from the purest motives, but he evidently was not fully aware of the characters he had to deal with—men who were ready to exact and avail themselves of every concession, and turn it to the best advantage, quite regardless of the stipulations into which they were themselves entering, as shown by their taking advantage of Mr. Pennant Lloyd's temporary absence from England to throw him overboard, and resort to fresh strikes as the means of extorting those further demands which he had refused to concede. The entering into an agreement to refer future disputes between managers and men was in itself, I submit, a very dangerous course to pursue, since it was not only an acknowledgment that disputes were likely to arise, but what was worse an admission that the managers were not at liberty to exercise such full control and authority as is absolutely necessary to enable any employer of labour successfully to contend with and keep in order 3000 men. It appears to me that one of two results only could follow from such a state of affairs—either the managers must truckle to the men, or the men could make their situations intollerable, and bring about their resignation or dismissal.

The root of the difficulty appears to be that Lord Penrhyn has conceded to his quarrymen the right to demand permanent employment at the quarry on terms which are calculated to yield them certain wages. In all other quarries and manufactories in the kingdom if the managers and men do not agree on terms each party can retain his own opinion and act on it. The manager may refuse to pay the workman more than he thinks his labour will be worth, and the workman is at liberty to go and find employment where he thinks his services are better appreciated, but in the Penrhyn Quarries it appears that this is not so, for while the man is at liberty to go elsewhere if he thinks proper to do so, yet the manager is not a free agent in the matter, but must find employment for the man, whether his services are required or not, and on terms which the manager must submit to, or be subjected to a reference to some third party.

If I had not felt called upon to answer the letter of Mr. Pennant Lloyd, I should not have noticed the further communication of "An Observer," whose last letter appears to be designed by the mention he makes of sundry slate-bearing mountains by name, and the enumeration and translation of sundry Welsh words used by quarrymen, to try and impress your readers with a sense of his profound knowledge of slate quarrying in Wales, and to withdraw their attention from the issue between us, which was simply—Whether practical

experience in the working of Carnarvonshire slate quarries is necessary to enable a man to set bargains satisfactorily in the Penrhyn Quarries? I have asserted that it is, and "An Observer" complained of my saying so, and says that it is not, and that a Festiniog quarryman (he professing to be one himself) can, though his experience has been confined to Festiniog, understand the character of slate rock in Carnarvonshire or any other part of the world, and is, therefore, competent to advise on the setting of bargains in the Penrhyn Quarries.

In the correspondence which has already taken place, we have each of us stated our reasons for the opinions we entertain, and the public can judge between us. I should be quite content to let the matter rest where it does, but as I am writing I cannot forbear to draw the attention of your readers to the following statements of "An Observer" himself, which appear to me very strongly to support my opinion. He refers to his own experience in Rhiwbryfdir Quarry and in Llechwedd Quarry, and says that he believes the cleavage on the main vein in the former cannot be excelled, but that at Llechwedd it is totally different, and adds "If a man were confined or accustomed for years to the main vein, but ultimately is removed to a slate bargain in one of the other veins, he would feel himself at a loss for a short time, because the pliancy of the cleavage is not uniform throughout the veins, and, in consequence, he would have to change his tack accordingly." Exactly so; but the difference between any of the veins in the Festiniog district is not nearly so great as between those and the Carnarvonshire veins, and an experienced hand at Festiniog must, indeed, "change his tack" before he could form anything like a reliable opinion on the probable yield of the different qualities of slate rock in the Penrhyn Quarries, or venture to set bargains therein. A QUARRY PROPRIETOR.

Nantlle, Carnarvon, Dec. 8.

THE RICHMOND MINING COMPANY, AND ITS NEVADA MANAGER.

SIR,—Knowing that the well-filled and well-conducted pages of the Journal are always both eagerly and extensively read by hosts of educated minds in every quarter of the globe over which the British flag proudly floats to protect British subjects, and to foster British energy and enterprise, and on this Continent, too, or wherever else mining interests are held paramount to other pursuits; and knowing, also, that it is, and has been, the fearless, unflinching exponent of the views, practical as well as theoretical, of mining men everywhere; knowing, I say, these things, I have no hesitation in requesting that you give publicity to this unavoidably lengthy article. By giving it a place in the Journal you will not only confer a favour upon the writer, but you will also materially subserve the partially neglected interests of many of your readers, and whose ducats are invested in this quarter of Uncle Sam's broad domains.

To extend preliminaries a little further, I will add that if length of residence (five years), and the consequent relationship into which it has brought me with the mines and mineral resources of this far-famed section of Nevada, should be taken into account, the London public, for whose benefit I write, will not, I think, withhold from me its attentive perusal, nor misjudge the motives that actuate me in making charges which are below set forth *seriatim* against the officer whose name forms a part of the caption to this communication.

Entertaining a due regard for truth, and wishing, also, that the source from whence the said charges have emanated should be fully known to the gentleman whom I purpose arraigning at the bar of British public opinion, I pen them over no obscure *nom de plume*, but am content to commit them to the criticism of yourself and readers above my own well-known signature. This is my invariable custom, and I fail to note any good reason why I should depart from it in this instance. It is the most honourable procedure certainly, and there is no man of a well-conditioned mind but must eventually commend it. The writer's motives, too, cannot be so readily distorted. True, the charges which I bring forward here may be devoid of interest for some of your readers, but to the Richmond shareholder they will appear full of significance, and will immediately prompt him to set about investigating their truth or falsity. This is just what I desire. I court investigation, but not so much from a desire to sustain my own assertions as from a wish to do something to help to correct the evils which have crept into the management of the Richmond Company.

[The writer then goes on at great length to state that since last June thousands of dollars have been lost to the company. Immediately upon the change of management it was ordered that the receipts of charcoal from all parties other than those holding written contracts should be discontinued from that date—July 1—though there was not more than three written contracts, and not more than 12 days' coal in the bins at the time, and three furnaces running, consuming nearly or about 5000 bushels of charcoal each 24 hours. Loud and long were the complaints, and deep and terrible were the imprecations of the disappointed ones, whose coal was a drug upon their hands, though they had verbal contracts which were good up to Aug. 1 ensuing. Heartily but bitterly were the actions of the London board commented upon, and as heartily and bitterly condemned, for having sanctioned the appointment of the new manager.

[But this, though bad enough, was not the worst phase of an episode which at one time threatened serious consequences to the interests of the Richmond Company. Not but the history of this coal war is in itself instructive, as showing the miserable, unworthy policy which was inaugurated by the agent of a great and powerful company like the Richmond. True, the manager is a scholar, but not a practical business man, such as is needed to guide the Richmond helm to a port of safety amid the breakers that beset it on every side.]

[But to proceed. Some two months ago the manager purchased, by wire, at Pittsburgh, Pennsylvania, 740 tons of coke for winter use, which he ordered to be shipped to Elko, on the C.P.R.R. In compliance with his orders, 500 tons of it was loaded for said station, where it arrived nearly one month ago. It is there yet, with $20,000 lying dormant in it, upon which the company have to pay 1 per cent. per month, or $200 per month, interest. This is the result of his irascibility of temper and of his "penny wise and pound foolish" policy. The question will naturally arise, "Why is this the case, and why is it not hauled to the furnaces and utilised?" I will briefly tell the reason why it still lies there. Soon after the coke was ordered he cabled to Cowles, the fast and slow freight agent of H. L. Pritchard, at Eureka, to learn whether he could haul the aforesaid coke. Cowles answered that he could, but, in consequence of some dispute, the coke has not been hauled by Pritchard. He next applied to Reinhardt, forwarding agent at Elko, to ship the said coke to Eureka. This, however, Reinhardt could not do, owing to the paucity of teaming facilities within his reach to move it. It is likely, too, to remain there for an indefinite period, Pritchard being the only person that is able to deal with it at this season of the year. The manager also well knew that when he failed to arrange with Pritchard that he not only endangered the transportation of his bullion, as the sequel has shown he did, but that he was levelling a severe blow against the early completion of the Eureka and Palisade Railway, 45 miles of which will have been completed by the time this article reaches the compositor's hands. The early completion of this highway will be of incalculable benefit to the Richmond Company, whose property value it will greatly enhance.

[Now for another phase of this affair. Mr. Pritchard and his agent, Mr. Cowles, have resented the refusal to negociate since then, for they have hauled but very little bullion from that time to the present. There are now over 550 tons of it piled up in the yard in huge stacks awaiting shipment. It is valued at $160,000, which has been fully drawn from the financial agent, Mr. Daniel Myers, of San Francisco, upon which the company has to pay 1 per cent. per month, aggregating $1600 per month interest. This, methinks, is rather a dear price to pay for one's whistle. This bullion is augmenting at the rate of 18 or 20 tons per diem, and should it continue at the same rate for the next 30 days above 1000 tons will have accumulated, representing a sum equal to $300,000, which will absorb the snug sum of $3000 per month interest. Who shall say after this that they have not successfully hit upon a rather novel method of financiering, even though it is an expensive one. No wonder that the distribution of dividends have of late been so few. Indeed, I am surprised how, under the circumstances I have tried to detail, they could be paid even as frequently as they have been. No mine not a Richmond could stand the drain made upon its resources, yet with economy and good management the mine ought to pay monthly, or at least semi-quarterly, dividends. But this is an impossibility under the present management, and until a radical change is effected I cannot discern much hope ahead for the Richmond becoming relieved of its embarrassments.

[Again, the writer hereof, representing a large stockholder residing in Ireland, made application to the manager some time in last July for liberty to inspect the mine on his behalf, but he indignantly refused his consent, alleging that these were the orders he had received when he left London. When he refused I intimated that I would write to the home office for the liberty he had refused me. To this he replied—"If you do anything of the kind I will cable to stop it." What could I think? Visions of rings and stockjobbing schemes rose in their might before me, and from that moment I lost all confidence in the Richmond manager, and I would not to-day believe him under any consideration. In addition, I strongly advised my friend to sell his shares as soon as practicable, because I had no confidence whatever in the integrity of the Richmond management, which I believe was run in the interests of a coterie of private friends. These were my opinions then, and they have not since undergone much modification. I made a similar application at one time to Mr. Corrigan, and after having become satisfied that I was acting in behalf of a shareholder he promptly allowed me to inspect the mine, which I did, and wrote a long article to the "San Francisco Mining and Scientific Press" on Jan. 14 subsequent, descriptive of its workings and ore bodies, extracts from which subsequently appeared in the *Mining Journal*. Mr. Corrigan, too, during the present month incurred the deep displeasure of the Richmond manager for daring to take with him to see the mine a gentleman, a resident of this town, who has purchased Richmond shares in connection with Mr. Forbes, of Glasgow. Two other gentlemen of this place accompanied them, and the manager's anger knew no bounds. He loudly censured his former colleague, to whose well-directed untiring efforts the Richmond Company is to-day indebted for the magnificent property it owns.

[Had Mr. Corrigan been less active and less vigilant than he was at the late legal contest between the Richmond and Eureka Consolidated Companies, the former would not now have a corporate existence, and Nevada would be forever condemned as a field unsuited to profitable enterprise. If Mr. Corrigan, or a man of his tact, judgment, and clear business qualifications, were at the head of the Richmond here matters would bear a much healthier hue, and the undeserved odium that has been heaped upon a once popular company would have given place to renewed confidence and good will on the part of Eurekans generally. Only yesterday, Mr. Hopkins, a foreman smelter, who has been in the company's service in the same capacity during the past four years, was discharged while the manager was labouring under an attack of his mental infirmity—passion, deep and uncontrolled.]

There remains one other point to which I wish to call your readers attention, and then I am done. I have for some time back observed that whenever possible the manager has never failed to arrogate to himself the credit of having originated the series of developments which have brought to light the present magnificent ore resources of the mine. Nothing can be further from the truth, as I full well know, but I am too old a miner, and am too well acquainted with the Richmond and its developments to be thus hoodwinked by any such specious pretentions. If credit is due to anybody for the remarkable success which has been met with in the east, north-east, and north and south lodes—now all yielding fairly an abundance of the richest ores—it is due and should be given to J. B. McGee who, ere he left for Tybo, commenced the workings towards the points to which they have since then trended with such remarkably bright results. The openings which led to the above points were all made by the orders of J. B. McGee from the shaft which bears his name, and which he himself originally located, and the manager had no other alternative left him than to push these incipient developments forward as fast as possible. He had, likely enough, sufficient sense to notice that his only salvation depended upon the vigorous prosecution of the work inaugurated by McGee, and his foreman, P. Rossiter. These are indisputable facts, and cannot be gainsaid, for I question very much whether his mining experience has been either practical or extensive enough to be relied on with any degree of confidence. The Richmond is, however, at this juncture the greatest and highest base metal mine in the world. The mineralogical history of Nevada presents nothing worthy of notice in the base metal line when compared with the wonderful riches developed in the Richmond, and it is my candid opinion that the four years during which it has already been worked is but a bagatelle in duration compared to the long and bright future that is before it. J. D. POWER.

Eureka, Nevada, Nov. 24.

RICHMOND CONSOLIDATED MINING COMPANY.

SIR,—If your correspondent, who signs "A Shareholder," be really a member of the company allow me to tell him that he is doing a treacherous and ungrateful act in attacking Mr. Probert, in his absence, by insinuating a charge of error in judgment in relation to a statement in reference to the Utah Mine, as a means of damaging his reports on the Richmond Mine; and then, in order to weaken Mr. Bridgwater's defence of Mr. Probert, inventing the charge that the two gentlemen, who are in no way related, are "brothers-in-law."

In the first place, as I understand, Mr. Probert only saw the Utah Mine once or twice about two years ago, and then only for a few days, at a time when all agreed that its aspect was promising. His reports on the Richmond are based on an experience of about 15 months continuous inspection of its daily progress. It is since Mr. Probert's return to the mine last July, and under his vigorous direction as the temporary manager, that the mine has made its recent astonishing progress in the development of such extensive bodies of rich ore and in improved smelting results. The fact that the mine has in about a year and a-half earned a net profit of half its cost, and that the weekly profits are now larger than ever, the reserves greater, and the prospects ahead more brilliant than at any former period of its history, ought to stop all grumbling from any *bona fide* shareholder. Your correspondent, in the teeth of the fact demonstrated by the accounts, that the directors in the past financial year have taken 23,000*l.* from the net profits to pay off all borrowed money, leaving the property clear of all liabilities, with a surplus of 5000*l.* towards the next dividend, to pay which, therefore, only required about 8500*l.* out of three months' further profits, earned before that dividend was declared, has the assurance to repeat his old charge that the directors were borrowing money to pay dividends; and quotes Sir Leopold Heath's speech at the last meeting of shareholders in support of such view, omitting, of course, the explanation and refutation at once given both by the Chairman and Mr. Hopkins.

The bullion forwarded to the bullion agent, on which he advances about 75 per cent., is virtually a partial sale to him, and it is simply ridiculous to any mercantile man to hear of money so advanced being designated as borrowed in the sense which the writer designedly and wrongfully insinuates. When the produce is in the shape of bullion it is clear from all risk, and its cash equivalent can be calculated to a nicety. The day the last dividend was paid, the profits in excess of that must, according to my calculations, based on the scale of the November returns, be sufficient for another dividend of 10s.; as, however, the shareholders have accepted the directors' recommendation to allow part of the accumulation to remain in their hands to enable the company in future to be their own bankers, we must not expect to have this surplus profit distributed at once.—*Dec.* 17. A LARGE SHAREHOLDER.

THE NEW QUEBRADA COMPANY.

SIR,—Will you kindly allow me space to refer to Mr. Consul Hemming's observations, in the Journal of Saturday last? I admit having from time to time during the last ten years applied to him for information respecting the affairs and prospects of this company; and I admit too, that to every application, although an entire stranger, I have invariably received a ready and most courteous reply. For these polite and, I may say, charitable acts I here, through the medium of your most excellent Journal, tender him my sincere thanks. AN ORIGINAL SHAREHOLDER.

Southampton, Dec. 16.

MINING IN QUEENSLAND.

SIR,—The receipt of tin at the Warwick Railway Teerminus for the month ended Sept. 30 last was—

Stream tin ..... Tons	487	1	0	14
Ingot tin	3	12	2	11

which, if reduced to stream tin at 68 per cent., for comparison, the receipt of stream tin would be equal to 492 tons 5 cwts., an increase of about 3 per cent. on the previous month, during which the weather was particularly favourable for the tin miners.

The receipt of tin (reduced to stream tin) at the Warwick Railway Terminus for the three quarters ended Sept. 30 last, are as follow:—

First quarter, ended March 31 ..... Tons	1317	12	1	5		
Second ditto	June 30	1455	11	0	9	
Third ditto	September 30	1463	6	2	13	

the last quarter showing a slight increase—¼ per cent.—on previous one. This shows that the supply is steadily maintained, and that the "rushes," "low prices," "poor ground," &c. &c., are not much to be depended upon.

It is surprising that so small a quantity of ingots have been received at Warwick, as to my knowledge there has been at least one furnace going all the month; but the ingots may not have been forwarded. There has been a reduction of 20s. per ton made in this local company's smelting charges during the past month, and one of our large shipping agents has reduced the freight to London to 15s. per ton, I believe as low as 10s. in one instance; this is a step in the right direction.

In the Journal of August 8 there appears a letter from H. A. Thompson, dated Sydney, June 12, in which he refers to my figures and estimates, and to whose remarks I must take exception. He says that he believes the total produce of tin (ingots) for 1873 was 5000 tons. Now, on June 12 he had the figures before him (or ought to have had) that would have definitely fixed the quantity to a ton. Why did he not give them? Why attack my figures with a bare assertion? I have endeavoured, whenever possible, to supply your readers with figures beyond dispute, and it seems strange to me that certain gentlemen connected with the tin interest of Queensland, and resident in Sydney, should, time after time, make such strenuous efforts to undermine my figures and statements. Strange, too, that although I have made every effort to obtain the exports and imports of tin and tin ore at Sydney for the year 1873, that up to the present date *it has not been made up;* is it carelessness of the Customs Department, or design? Strange, too, that my figures are always wrong, although, excepting as your reporter, I have not the slightest interest whatever in tin, tin mines, or the Stanthorpe tin field. When next H. A. Thompson honours you with a letter kindly ask him to give *figures* to disprove mine; his bare assertion, I am sure, will not go very far with your readers.

Direct shipments since my last—Oct. 16, Harmodious, 3175 ingots: 83 tons 4 cwts.—*Brisbane, Oct.* 16. RESIDENT.

AUSTRALIAN TIN MINES.

SIR,—Herewith I forward memorandum of the yield of the Tin Mines. The papers have lately been quite barren of news respecting tin, but I cut the following from to-day's summary of our leading journal:—

Receipts of tin ore have fallen off so much that what comes to hand is insufficient to keep local smelters in full work. The value of high assays of ore cannot now be quoted above 15 to 15½ per unit. Sales of smelted tin were effected at 83*l.* to 83*l.* 10s. Some remarks upon the quality of Australian refined tin will be found in our "Monetary and Mercantile Review."—*Sydney Morning Herald*, Oct. 23.

In the same issue of the *Sydney Morning Herald* is the following "Monetary and Mercantile Review":—

English advices to hand per Suez mail promise an improved market for tin, which is now an important Australian product. Some months ago we suggested that the surest mode of breaking down the monopoly that was then ruling the European market was by smelting our ore on the spot, and shipping refined metal to compete with the manufacture of English furnaces. When the experiment was first tried it was astonishing to find that so-called Australian tin was being sold in the home markets at 20s. to 40s. per ton less than Straits, whereas the tin sent from here was of higher assay than any produced from the Dutch mines. Since then an experiment was tried by the owners of a northern tin mine, who, having had a quantity of ore reduced at the Pyrmont Company's works, shipped the refined metal to their English agents. Messrs. Johnson, Matthey, and Co., of London, who were engaged to assay the samples, certified that they ranged from 99·90 to 99·95 per cent., and the shipment realised 91*l.* per ton, at a time when Australian was only nominally worth 89*l.* It only remains for the Pyrmont and other New South Wales smelting works to keep the home markets supplied with an equally pure metal, or even to fix a lower assay as the standard of their brand, and maintain it to secure as ready a sale in any market as either Banca or Cornish have had.

QUANTITIES OF TIN SENT FROM THE AUSTRALIAN MINES FOR FOUR WEEKS ENDING OCTOBER 10.

			Tons	c.	qr.	lbs.	Tons	c.	qr.	lbs.
Sept.	17	Via Warwick	70	10	1	0				
	24	Ditto	103	14	0	17				
Oct.	1	Ditto	83	16	1	5				
	8	Ditto	60	2	3	15=	317	2	3	9
Sept.	19	Via Murrurundi	48	1	2	1				
	26	Ditto	23	12	3	2				
Oct.	3	Ditto	51	18	3	8				
	10	Ditto	22	1	2	7=	145	14	2	18
Sept.	15	Via Grafton	21	1	0	0				
	21	Ditto	10	0	0	0				
	24	Ditto	7	9	0	0				
	28	Ditto	2	16	0	0				
Oct.	2	Ditto	1	7	0	0				
	5	Ditto	7	0	0	0=	49	13	0	0
Total ..... Tons							512	11	0	27

Sydney, Oct. 23. C. E.

THE RIGI RAILWAY.

SIR,—In reply to your correspondent, a brief description of this railway, from personal observation made last summer, may be interesting. From Vitznau to the Kulm the length of the line is four miles, the gradients being from about 1 in 16 to 1 in 6, and the guage the same as ordinary railways. Between the rails and in the centre of the track are two others placed close together; these are tooth rails, in which a pinion works under (and driven by) the engine, said to be 120 horse-power, having vertical boilers. The carriage, which will accommodate about 80 persons, being placed in front of the engine, but not connected. The speed is about three miles an hour. The whole work has been admirably designed and carried out, and the working of the line (by which means thousands of visitors annually ascend the Rigi) appears to be conducted with the greatest care and efficiency.—*Moorgate-street, Dec.* 16. C. J. HARVEY.

SUCCESSFUL LEAD MINING IN WALES, AND THE "NASCENT COPPER PROCESS."

SIR,—In the able article which appears in last week's Journal I notice the following:—"Mr. Robert Hunt, the official Keeper of Mining Records, states in his annual report, just published, that the amount of lead raised from British mines last year was no less than 73,500 tons 10 cwts., realising 1,263,375*l.* for lead, and 131,077*l.* for silver." This revives in my memory the strong statements made by your correspondent, Mr. Barnard, a year or two ago, as to all lodey matters being rich for silver, and proves the utter fallacy of his remarks: 73,500 tons, yielding in round figures 131,000*l.* for silver, this is but 7 ozs. per ton; and, as it is so well known that nothing has a greater affinity for silver than lead, how can we believe that poor copper ores will average 7 ozs., or as much as the lead of the county, which has to be concentrated to 70 per cent. before offered in the market? To produce 73,500 tons not less than 500,000 tons of ore must be turned over and dressed—with what result? About 1 oz. of silver per ton for the whole of the lead ore broken. In the face of these facts, can individuals be found so mad as to believe in the "nascent copper process" because it is backed by Dr. Emmens instead of inspired with the effusions of Mr. Barnard? And yet several mines are actually putting up works for the purpose of carrying out the schemes of a once mining notoriety, who, by his unusual silence, is supposed to be defunct and stilled forever. I will not, however, be ungenerous, although victimised to the tune of hundreds of pounds by tall talk or sensational writings, and promises of Mr. Barnard. I am in a mist, and really cannot conceive how Dr. Emmens, the New Great Consols Company, and several of the lead-

ing men of the Stock Exchange, could be gulled into accepting the shadow for a substance, since the statistics of Mr. Robert Hunt prove almost beyond a doubt that the silver does not exist.

Mr. Barnard, in one of his many pamphlets, was certainly very careful to inform the public that silver was associated with copper more than lead, but all the world has hitherto said otherwise. However, I hope that we shall soon have the nakedness of the whole affair exposed, or honour given to whom honour is due. I can see only two points to the question—1. Does silver really exist in copper more than in lead?—2. Can it be extracted by the Nascent Copper Process, and to profit? I am told that at the New Great Consols, Holmbush, and many other copper mines, the average of the discarded rubbish heaps is 2 per cent. copper and 7 ozs. silver per ton. This I do not believe, but taking the assertion to be correct, a simple calculation will show that only 250 tons treated per day gives a greater income per day for silver alone than the whole of the United Kingdom, with its hundreds of mines. What will Mr. Barnard say to this? I could, if I trusted to figures, almost work myself into one of his Barnardian rhapsodies, but the public will do well to be wary, and take a lesson from one who, on the strength of fair promises, parted with his money too easily. If, on the other hand, it can be proved by demonstrated facts that a real secret has been discovered by which losing mines can be turned into paying ones, I, for one, will heartily propose that Mr. Barnard be in future recognised as the salvation of English mining, and, consequently, the greatest mining authority of the day; at the same time, I would further propose that out of his future successes he fail not to remember the losses of the trusting ones of the past, more especially one particular individual, who encloses his card, and, for the present, only desires to be known under the *nom de plume* of

London, Dec. 16. ——— A. B. C.

MINERALOGY.—No. II.

MINERALS: THEIR HISTORY, CHEMISTRY, GEOLOGY, USES, AND COMMERCIAL IMPORTANCE.

BLACKLEAD—PLUMBAGO—CARBIDE OF IRON—OR (MORE CORRECTLY) GRAPHITE.

In my prefatory remarks it would be observed the credit of the classification of the article plumbago as a non-metallic substance is awarded to the indefatigable and accurate philosopher Boyle, and this in opposition to the opinion of those who, we are informed, being "best acquainted with it, style it a black, pinquid, shining earth, which they suppose impregnated with antimony and lead." That it should be regarded as a species of the latter metal, and thus acquire the popular cognomen of plumbago, or blacklead (from *plumbum*), need excite no surprise in those who regard only the exterior or physical properties of lead. Both are solid, possess an unctuous feel, and each leaves a dark streak upon white paper—but here the analogy ceases. Strange as it may appear, graphite (plumbago) in its chemical composition approaches nearer to the diamond than any other known substance. In fact, the most abundantly diffused, and hence cheapest, variety of graphite possesses within a very small percentage a composition identical with diamond, and yet how widely different in physical appearance, commercial value, and social influence! Of the diamond it may be said that for the possession of even a few grains thrones have tottered to their bases, and the most ancient dynasties have been scattered to the winds; its brilliancy and pellucidnesss have rendered it an object of almost idolatrous regard in all ages, the main attraction amongst the gorgeous and glittering regalia of ancient and modern times, the decorative orders of the warrior, and the equally well-merited insignia of the senator. It is also the highly-esteemed jewel upon the brow, the bosom, and the wrist of the fair and beautiful, where frequently its lustre is dimmed and its presence rendered meretricious by the inherent grace and personal attractions of the wearer.

As an article of commerce the diamond has, from time immemorial, exacted a price perfectly fabulous, equalled only by a "king's ransom." Of the varieties of carbon, the diamond ranks as the purest, the onyx stone (according to Buffon) next, graphite the third, whilst other varieties, as charcoal, coke, and anthracite, follow in their respective orders, but at immeasurably distant periods. The diamond must be regarded as pure carbon, inasmuch as, upon analysis, it cannot be reverted to any other element, and upon any attempt to act upon it in conjunction with oxygen the resulting compound is simply the well-known and noxious carbonic acid. Onyx stone, on the other hand, yields, besides its carbon, a small proportion each of oxygen and earthy substances. Graphite shows, as we have already seen, of foreign matters from 1 to 40, or even 50 per cent., not chemically but mechanically combined. In the following analyses are presented the composition of some varieties of graphite hitherto presented to the European market, wherein it will be noticed that rarest and most valuable sort, the "pencil lead," contains the largest proportion of foreign mixture. The first table is arranged locally according to Buffon, being the massive "pencil lead" from Borrowdale; Nos. 2 and 3 the striated and granular respectively, from the Himalayas and Ceylon:—

	No. 1.	No. 2.	No. 3.
Carbon	53·4	71·6	94·0
Iron	7·9	5·0	—
Lime and Alumina	36·0	8·4	6·0
Water	2·7	—	—
Silica	—	15·0	—
	100·0	100·0	100·0

My own analyses of the granular and striated graphite from Canada, Ticonderoga, and Germany tend forcibly to confirm the general correctness of specimens Nos. 2 and 3, here given. As an instance of the erratic composition of the Cumberland pencil-lead, Buffon remarks:—"Le milleure plombagine connue est il de Keswick, dans le duché *(sic)* de Cumberland, en Angleterre; elles s'y nomme Kellow? Scheele a retiré de la plombaigne—carbon, 90; oxydfer, 10; Il y a des plombagine moins pure, qui contennent plus de fer, et différentes terres; c'est pourquoi on ne peut s'en servir comme crayon." Until recently the existence of pencil-lead has been supposed to be limited to Cumberland; now Russia, the United States, and Canada contest the point; and, in answer to the shibboleth of knowledge and industry, England is no longer able to boast of exclusive possession, or the proprietors of the Borrowdale Mine restrict the sale to an arbitrary issue. The following is said to be the mode adopted in these piping days of free trade to enhance the value of pencil-lead. Periodically, never more than once a year, the far-famed mine is opened, and a sufficient quantity of graphite extracted to supply the market during the year, or period determined upon. The mine is then closed up, and the product is conveyed, in small fragments of about 3 or 4 in. long, to the metropolis, where it is exposed for sale at the "black-lead" market, held at a public-house in Essex-street, Strand, on the first Monday in each month. The buyers, not more than a dozen attending the sales at one time, examine each piece with a sharp instrument, to ascertain its compactness. Those being too soft are rejected. The individual who has the first choice pays 60s., the others 50s., per pound. But as there is no addition made to the quantity in the market during the course of the year the residual portions are examined over and over again until they are exhausted. The annual amount realised has been known to reach as high as 100,000*l.* Exigencies have frequently arisen where the exactions of demand have far surpassed the means of natural supply.

For years we have been accustomed to the cry that the workings at Borrowdale have been on the verge of cessation, and at length a well-grounded conviction exists that the speedy exhaustion of graphite from this source is inevitable. In the interim the consumption of pencils becomes daily on the increase. With the rapid diffusion of a popular taste for the fine arts, and an almost miraculous extension of professional, mechanical, and commercial enterprise, all imperatively involving a perpetual recurrence to the aid and consumption of pencils, the principal material employed is becoming "a thing of the past" in the locality in which the civilised world has for centuries looked almost exclusively for its contribution. It cannot be denied that the aid of science, as is invariably the case in such cases of dilemma, has been evoked, and to a great extent successfully, to furnish an artificial substitute. But cost of production, an item of consideration in all questions of supply and demand, has erected a barrier against the universal introduction of the fictitious article. One of the earliest inducements to attempt an imitation of graphite arose, as many of the most important discoveries of all ages have done, from accident. After Capt. Roe had invented the diving bell he joined Sir Archibald Grant, a great speculator in those days in coal mines and other like matters, in an attempt to weigh the Florida, one of the ships of the Spanish Armada, which had foundered off the coast of Mull, near Lobermory Harbour. This attempt, which took place in 1740, was unsuccessful as far as related to the ship, but some guns, both of brass and iron, were brought up. Strange to record, the brass cannons bore the marks of English founders upon them, "R. & J. Phillips," together with the date "1584," with a crown and the royal initials "E. R." The iron guns were deeply corroded with graphite, and on scraping them, it is said, they became so hot that they could not be touched, and they did not become cool until they had been two or three hours exposed to the air. The astonishment of the Highlanders, it is added, on finding guns still hot, after having been for upwards of a century under water, may be easily imagined, and it is not surprising that this story was not believed, and that, not being believed, it was soon forgotten. In obedience to certain chemical laws it is found that lead may be substituted for iron in the preparation of artificial graphite, and it has been satisfactorily proved that of all the varieties thus manufactured the best is when lead has been substituted, though, as we have seen, lead never enters into the constitution of the natural product. W. WHITE.

Laboratory and Assay Office, 25, Finsbury-place, London.

[To be continued.]

ROCK-BORING MACHINES.

SIR,—In his letter to the Journal of last week "X" reiterated his statement as to what he chooses to call "striking gear" in our machine. He may possibly have his own definitions for words that could otherwise universally have a different meaning, but there can be no mistake that in employing such terms he intends to convey the idea of violent and destructible motions. The work that a boring-machine has to accomplish is undoubtedly the most severe and trying that a sufficiently portable and available mechanism for the purpose could be required to perform, and it is no wonder that a construction, which nevertheless effects it in the most satisfactory manner for a continuous long period, without necessitating delays and outlays for repairs, should be considered of much importance, and, as in the course of nature in such matters, has required long time, expense, and experience to attain. Boring-machines which could not have made claim to any considerable durability have notwithstanding proved more or less successful over hand labour, and may be so considered still, where employed on a sufficient scale, with organisation and facilities for repairs, or having in provision a sufficient number of duplicate machines, or duplicate parts. But a machine which accomplishes the work without these, and with consequent savings, should be appreciated as it deserves. If the writer will accept a comparison we will endeavour to illustrate all about his "striking gear," and try to make his statement as clear as practicable to the "thinking public," so that the "thinking public" may think with open eyes, instead of being required to think from the premises of his, of course, unbiassed statement merely.

The writer seems not to be pleased with the fact, or else not with the manner, of our soliciting and urging a *concours* of boring machines. We have sought this mode of acquainting the British public with the advantage of boring machines, and the appliances in connection with the same, because it would decide them upon their use, and guide them in selecting machines, as well as in the manner of using them, and it seems to us a method quite in accordance with the customs of this and all countries, and sanctioned, encouraged, and patronised by the Governments. The co-operation of manufacturers and the maintained interest of the public have been often and recently enough illustrated to prove the desirability of such an exhibition. It would be an available convenient opportunity for a large number of interested parties to form a judgment on the subject, and the quickest and best way of propagating the use of such new systems for mining operations. It would be a frank, open way of dealing, and better than any advertising manœuvres. The expense or difficulty cannot be mentioned as a reason against it.

London, Dec. 17. ——— McKEAN AND CO.

LEGITIMATE MINING.

SIR,—I have read with much interest Mr. E. Betteley's letter, which appeared in the Supplement to the Journal of Dec. 5. From time to time this gentleman has favoured your readers with practical hints on this very important subject, but the present proposed scheme strikes me as being the best. Metallic mining, honestly conducted, offers unusual chances for large profits, and as the principal part of the outlay is expended in labour it confers an immense benefit on a well-conducted and industrious population—the miners. In this district strikes are unknown, and the men always evince a readiness to submit to a reduction of wages in times of severe depression. The plan proposed appears to be very feasible, but will doubtless meet with strenuous opposition from promotion hunters, yet there is one point which I would venture to suggest to Mr. B. as being desirable to add to his admirable programme—"That no property shall be purchased or sold, or assistance rendered, without calling a meeting of the company." The addition of such a clause would relieve the directors from a serious responsibility, and ensure the most rigid enquiry being made prior to bringing any concern under the notice of the company.

There is great scope for mining enterprise in the two western counties, and there can be no doubt that the results of working would be highly successful, and with practical men in the direction there would be no difficulty in selecting the most eligible properties.

Tavistock, Dec. 13. ——— AN INTENDED INVESTOR.

SOUTH CONDURROW MINE.

SIR,—I am sorry indeed at the result of the last meeting of the shareholders in this mine. I consider that Mr. Weston, the chairman, acted very inconsistent after delivering his speech. I have been a shareholder for a considerable time (and not to a small extent either), and having had a long experience myself in mining, I have watched the proceedings in the working of this mine very carefully, and I can say with the greatest propriety that it has been managed for the benefit of the shareholders quite equal to any mine in the county. Capt. Joseph Vivian stands second to no other mine agent in the West of England, and I regret much at his removal. I am satisfied that he has not had fair play. The thing to be complained of (and the only thing) is the conduct of the committee in stocking the tin. If they had sold it monthly (as they should have done) at the market price of the day, the shareholders would have had at the last account meeting upwards of 3500*l.* to divide—say, 10s. to 12s. 6d. per share. If this course had been pursued it would have satisfied the shareholders, and no demur would have been made. Capt. Vivian, I understand, had nothing to do in this matter, it was the sole act of the committee, and I doubt much if they, as trustees, are not liable to the shareholders for the amount thus lost to them, if taken to a Court of Equity, on the ground of speculating with trust property, which evidently they did, and sacrificed from 3000*l.* to 4000*l.*, that otherwise would have gone into the shareholders' pockets. A DISSATISFIED SHAREHOLDER.

St. Austell, Dec. 15.

SOUTH FRANCES MINE MEETING AND REPORT.

SIR,—I have no wish to prolong a correspondence which can only be interesting to a small portion of your readers, and I should not have reverted to the matter again had not Mr. Clarke's letter appeared in last week's Journal. With the general tenor of his remarks I perfectly agree. I believe there is a lack of charity amongst mining agents towards one another, and it is this lacking on the part of the South Frances agents which caused me to write so strongly. If Mr. Clarke is the impartial witness he professes to be, he cannot but admit that my report contains nothing that savours of a reflection, either as regards the mode of working the mine or the capability of the agents. If he has not seen the report from which I quote, and which in my opinion exhibits the very spirit he deprecates to an unusual degree, I would suggest that he obtain it before he prejudges the aggrieved and palliates the aggressor. If he has no secret leaning towards the agents in question, then his course of action seems to me akin to the old Lydford judges, who used to "hang, draw, and quarter, and sit in judgment after."

Dec. 14. ——— RICHARD GOLDSWORTHY.

HINDRANCES TO SUCCESSFUL MINING.

SIR,—The hindrances to successful Cornish mining are of two classes—the preventible and non-preventible. To the latter class belong those mines which are being worked on poor and dislocated lodes, where the surroundings are difficult to break, and where the water charges are heavy. However numerous the mines of this class observation in every mining district in West Cornwall, and not a few of the mines in East Cornwall, guarantees the writer to make the assertion that mines of the former order are more numerous, and some of the causes are—1. Non-development.—2. Absolute waste of money at the surface.—3. Useless and worthless machinery.—4. Not sufficient work contracted for.—5. Committees ignorant of mining.—6. Unqualified agents;—which causes we hope to enlarge on *seriatim.—Reawla, Gwinear, Dec.* 16. EDWARD SKEWIS.

WELSH LEAD MINES—OLD TALARGOCH.

SIR,—I perceive that attention is being directed to the Welsh Lead Mines, and trust that the prospects of the shareholders will be looking up. Two of your correspondents have noticed the Old Talargoch, which I believe is one of the fine old mines which seem to be possessed of never-ending stores of lead ore. Since my attention has been drawn to it by your correspondent's letter I have been induced to make some enquiry of a confidential character; and although I made the enquiry privately, the facts are such as I can give them to your readers. The mine has been sold to the new company for 40,000*l.*, 20,000*l.* of which is taken in shares. The amount of capital now raised is 60,000*l.*, and further capital if necessary will be raised with a premium on the shares. The machinery and appliances on the surface, which consist of 15 steam-engines, including two large pumping-engines of 80 in. and 100 in. diameter of cylinder, with their pumping-gear complete, and the boilers (which I am told are to be replaced with new modern ones). The shafting, &c., will have cost 40,000*l.*, and if it be broken up for old iron would fetch 13,000*l.* The shafts are well built and wide, ranging from 12 to 15 ft., and sunk to 360 yards, others to 220 yards, and more shallow depths, with levels laid with iron rails are all adapted for easily bringing the product of the mine to the surface. The output of the mine has in the days of its old proprietors paid them handsome dividends, and paid for all the machinery. Its recent sales have averaged 140 tons lead and 200 tons of blende per month, and there is no reason why this large return may not be doubled when the Walker shaft, now sinking, has been carried down 60 yards more. Mining engineers who have inspected it say it is one of the finest properties they have seen, and all declare that it is a more valuable mine than the Van, rich though that mine has been. In addition to the lead and blende, which are now the saleable materials, there is a good iron mine, and one of silica on the sett. They have not been worked by the old proprietors, but will, if required, be the means of adding to the dividend. Taking the information which has come to hand, I believe that it is a *bona fide* property, well worthy of investment. In the article which you are writing on Lead Mining in Wales, when you come to the mines in Flintshire you will no doubt give your opinion of this property.

Broughton, Dec. 16. THOMAS WEST.

[For remainder of Original Correspondence, see to-day's Journal.]

FOREIGN MINING AND METALLURGY.

Copper, which had been slightly depressed at Paris, has again been better supported. Chilian in bars has made 92*l.*; ditto, ordinary descriptions, 90*l.*; ditto, in ingots, 96*l.*; English tough cake, 98*l.*; and pure Corocoro minerals, 91*l.* per ton. After having exhibited some little weakness at Marseilles, copper has also become firmer upon that important centre. The demand for tin at Rotterdam has been extremely weak, and prices have been scarcely sustained. Banca has receded from 58 fl. to 57½ fl. Consumers have only purchased to meet their actual requirements. Several transactions have taken place in Billiton, at 55½ fl. Upon the Paris market tin has been scarce, and quotations have remained without variation. Banca, delivered at Havre or Paris, has made 105*l.*; ditto, Straits, 98*l.*; ditto, English, delivered at Havre or Rouen, 98*l.* per ton. Tin has been well supported at Marseilles. Upon the German markets the article has, however, ruled quiet. There has been little business passing in lead at Paris, but prices have been firmly maintained. French lead, delivered at Paris, has made 23*l.* 16s.; ditto, Spanish, delivered at Havre, 23*l.* 12s.; ditto, Belgian and German, delivered at Paris, 23*l.* 16s. per ton. Lead has continued to rule firm upon the German markets. The Vieille Montagne Company has advanced the price of its rolled zinc to 32*l.* per ton upon the Belgian, Dutch, and German markets. The Paris zinc market has been firm. The German zinc markets have been generally well supported, but transactions have been compartively limited.

In the French iron trade the principal event of the last few days has, perhaps, been the general meeting of the Creusot Company. The results of the company's past financial year were of the most satisfactory character. The total production of steel during the year amounted to 128,000 tons. The sales of all kinds effected by the company during the year amounted to 2,200,000*l.*, of which 800,000*l.* was on foreign account. The balance at the credit of profit and loss for the past year was 264,000*l.*, reduced, however, to 212,000*l.* by sundry statutory deductions. The dividend for the past year has been fixed at 2*l.* 16s. per share, of which half was paid on Tuesday, while the balance will be distributed June 15, 1875. The Terrenoire Ironworks Company has leased the Tamaris Ironworks, near Alaes, owned by the Alais Forges and Foundries Company. This establishment, united to that of Bességes, will give to the Terrenoire Company an indisputable preponderance throughout the south-west of France. The Terrenoire Company, like the Creusot Company, does not appear to feel the effects of the terrible crisis which generally afflicts French industry. The current quotations for iron in France have not sensibly varied. The total production of pig in France last year has been officially returned at 1,360,000 tons. For the first half of this year the production was 700,000 tons, of which 500,000 tons were made with coke. The production of iron in France in 1873 was 760,000 tons, and in the first half of this year 380,000 tons. The quantity of steel made in France in 1873 was 155,500 tons, and in the first half of this year 105,200 tons.

The only interesting fragment of intelligence which we have to record this week with respect to the Belgian iron trade is a reduction of 10 per cent. in wages in the arrondissement of Charleroi. Notwithstanding the serious apprehensions which this measure had occasioned to the military authorities of Charleroi who had expected grave difficulties in consequence, the affair passed off extremely quietly, the ironworkers having appreciated the absolute necessity of the measure adopted by their employers. The alternative before the men was, indeed, idleness during the winter or an acceptance of the reduction proposed. Under these circumstances the men acted wisely in accepting the least onerous alternative. It is to be hoped that the reduction thus enforced in wages will lead to slightly lower prices for iron, as a reduction in quotations would involve probably some increase of business. Some tramway carriages of remarkable lightness are being made for the Brussels tramways; 40 vehicles are being thus constructed for Belgium, and a more considerable number still for sundry French tramway lines. The important question of steam traction on the national tramways of Belgium is now engaging attention on two or three different sides.

The extraction of coal in France has been somewhat reduced by *fete* days, but there has, nevertheless, been no great firmness in coal quotations. As usual at this period of the year, heavy winter supplies have been laid in, so that there is now a general slackening in affairs, and the downward tendency in prices which has been noticed for some time past still continues. In the basins of the Nord and the Pas-de-Calais the deliveries have been rather reduced of late. In the basin of the Loire the situation has not changed for the worse; it has, on the contrary, become somewhat better, but this is attributable to local causes, and too much importance must not be attached to it, more especially as no advance in quotations has been established. In the competitive German basin of the Ruhr prices have also been rather tending downwards.

Working operations have been a little interrupted by *fete* days among the Belgian coal miners. This circumstance has enabled existing stocks to be run off, and has given more steadiness and activity to the Belgian coal trade generally. In the Charleroi district, as well as in the Centre and the Mons basins, there have been great complaints as to the scarcity of labour. Although the managers of Belgian collieries are making every exertion, they find it difficult to meet the combined requirements of consumers and exporters. It

is stated that a complete train of coal arrives every day in the Charleroi district from the Ruhr basin, and that as considerable a quantity is also forwarded into the arrondissement of Liége. It is none the less true that coal for industrial purposes is somewhat at a discount just now in Belgium in consequence of the depression which weighs at present upon Belgian metallurgical industry. The winter has, however, become more rigorous, and this circumstance will increase the demand for domestic qualities of coal. Meanwhile, no serious change can be said to have taken place in quotations. The Ougrée Collieries and Blast Furnaces Company will pay, Jan. 2, a dividend for 1873-4 at the rate of 16s. per share.

Meetings of Public Companies.

THE STEPHEN ROE DIFFUSIVE DAYLIGHT REFLECTOR COMPANY (LIMITED).

The second meeting of the board of directors of this company was held, on Thursday, at the office, 60, Market-street, Manchester,

Mr. Robert Cooke, Chairman of the board, presiding.

The minutes of the first meeting having been confirmed, and some preliminary business disposed of,

The Chairman said he was glad to meet his brother directors under such favourable circumstances. Their little barque had been launched only some 14 days, and he was glad to be able to report that she was not only water-tight and seaworthy but buoyant and rapid in sailing. The company was progressing most satisfactorily, the shares were being taken up far beyond the most sanguine expectations of the promoters, and the business greatly increasing beyond that promised in the prospectus. The officers of the company were working in the right direction; they were combining economy with efficiency, which he believed to be the salvation of all new concerns. He had been mixed up with several limited liability companies, and he invariably found that most of them were killed by over sanguine expectations, and, consequently, high salaries. On looking over the books of the company he found that the most rigid economy was enforced, together with a strict supervision of the workings and plant of the proprietors. The orders were coming in so satisfactorily that he had no hesitation in promising a good dividend even upon the first year's transactions.——A considerable number of shares were allotted, and the proceedings terminated with a vote of thanks to the Chairman.

DIAMOND FUEL COMPANY (LIMITED).

A meeting of shareholders in the above Company was held at the Cannon-street Hotel, on Monday, to take into consideration the present state of affairs and mode of management, and the desirability of appointing a committee of investigation, with ample powers to call in any professional assistance they may decide upon, so that matters may be fully gone into before paying the call of 2*l.* per share; and, further, to discuss the desirability of a change in the direction with a view to the better representation of the general shareholders. Mr. Jas. W. Baker in the chair.

The Chairman briefly introduced the business of the meeting by observing that he regretted the directors of the company were not present, notwithstanding that they had been invited to attend. The formation of the company had taken place nearly two years ago, and he was sorry to say that nothing as hitherto of any practical value had been done for the benefit of the shareholders, and it would now become a matter of serious consideration and discussion as to whether the affairs and present position of the company ought not to be thoroughly investigated, either with a view to bring the company to a successful issue, or otherwise wind it up, and with these few observations he invited any shareholder to address the meeting.

Mr. Staples addressed the meeting at some length, and gave an account of his visit to the company's works at Belvedere. He said there was no doubt whatever the directors had expended a considerable sum of money to no purpose; but after much delay and difficulty the machinery was now working remarkably well and turning out 40 or 50 tons of patent fuel per day; and the directors had ordered more new machinery upon the same principle, and the output would be increased to 400 or 500 tons per day, and upon which a profit of 4s. per ton would be realised, all expenses being included, and he felt entire confidence in the ultimate success of the company.

Mr. Smith next addressed the meeting, observing that Mr. Staples had no doubt come there as an exponent of the directors' policy, and from whose statements he entirely dissented, and contended there was no utility in the patents. Large sums of money had been expended upon useless experiments, and the patents would be expired before any practical result was arrived at. The duration of the patents was not generally known to the shareholders, and taking into account the price of coal no profit whatever could be made out of the patent fuel.

Mr. Thompson observed that the directors had been greatly imposed upon by engineers and other parties, and the shareholders' money wasted, but he gave them credit for honesty of purpose, and he expressed himself favourable to a committee of investigation being formed, and not to a wind-up of the concern.

Another Shareholder remarked that he was induced to try the patent fuel in his house, and found there was 25 per cent. of ashes left, and that it was totally unfit for domestic purposes on account of the sulphur and other offensive matters arising therefrom, and that out of the various patent fuel companies which he had known they all proved failures, and his decided opinion was that this company would prove the same, and he would suggest the manufacture of patent fuel should be discontinued, and the company wound-up.

Mr. Hassall said the affairs of the company from the first had been conducted in a most unbusiness-like and incompetent manner, and the directors should only have been too glad to induce parties to take up the patent, instead of which they had such inflated notions of its value that he was informed they absolutely asked some parties as much as 150,000*l.* for the use of it, and the trials which had been made upon the steamers between the patent fuel and Thorp's Gawber Hall coal were decidedly in favour of the latter, and he was fully satisfied that under the present system of management the company would eventually have to be wound up.

Mr. George Lewis, jun. (of the firm of Lewis and Lewis) attended the meeting on behalf of the shareholders, and the following resolution was moved, and carried unanimously—"That a committee of investigation be and is hereby appointed, consisting of the Chairman and two other shareholders, with power to confer with the directors, and take such steps for the protection of the shareholders as they think necessary."

A vote of thanks to the Chairman closed the proceedings.

PRUSSIAN MINING AND IRONWORKS COMPANY.

(Preussiche Bergwerks und Hutten-Actien Gesellschaft.)

The annual general meeting of the shareholders was held at Düsseldorf, on Dec. 12,—Mr. W. T. Mulvany, President, in the chair.

There were fifteen shareholders present, representing upwards of 10,000 shares. The business was opened by the reading of an address from the President, to which we may return in our next publication, and the usual preliminaries having been disposed of, and the meeting being duly constituted, the report of the direction was submitted.

Contrary to the expectations entertained even at the time of the last general meeting (although industrial affairs had then taken an unfavourable change) the depression in the iron, especillay pig-iron, trade became monthly worse and worse, so that the result of the year's operations, notwithstanding a tolerably favourable condition of the coal trade, is a considerable loss on the total of the working accounts. The direction has, therefore, had detailed statements of the present condition of the property prepared, that every shareholder may form his own judgment of the intrinsic value of the shares as a permanent investment of capital. The period to which the report and statement of accounts refer has been one of disaster for the iron industry, not only of this country, but all over the world. Prices had risen in the first half of the year 1873 to an extent theretofore unknown, and the cost of all the raw materials—coal, coke, iron ores, &c.—as well at the rate of wages, having risen enormously, the cost of production of the pig-iron became nearly double what it had been a year or two before. Towards the middle of the year the demand for pig-iron became suddenly and greatly reduced, most of the manufacturing ironworks declining to contract for future supplies, limiting their operations as much as possible to working up their stocks of raw materials. Notwithstanding a rapid fall in prices, the demand did not increase towards the end of the year as had been hoped, and most of the high furnace works found themselves with a large stock of iron on hand, which had been produced at the high rate of cost of the preceding months, and was not then saleable even at a price considerably below the cost of production.

The unavoidable loss upon the working of the blast-furnaces and iron mines would have been more than counterbalanced by the profits of the coal workings, if even two out of the three collieries belonging to the company had been at anything like full work; unfortunately, however, the output at Hansa Colliery was so limited, as hereinafter more particularly described, owing to an increase of water in the workings, and the unfinished state of the works, only one shaft being available for coal drawing, pumping and ventilation that the year's working produced a loss instead of a profit; and Erin Colliery, where the output was also limited, owing to the insufficiency of the pumping power for the increased quantity of water, did not return more than about half the amount of profits which it would have done in a normal state of working. The extensive and valuable iron mines, which had been acquired, as mentioned in the last yearly report, with a view of placing the company in a position to work its present ironworks, or any extension of them, with iron ores as well as coke of its own production, have, of course, been unproductive during this crisis in the iron trade, as it was found necessary to blow out all the furnaces except one at Vulkan, which was kept at work to use up the stock of ores, &c., already lying at that works.

Although the reaction in the iron industry has been so unexpectedly great and sudden in its operations, and although the return to a healthy state of the trade appears likely to be slower than could have been expected, there can be no reasonable doubt that, sooner or later, such a recovery will take place, and that highly satisfactory results may be reckoned upon from the exploitation of such collieries, ironworks, and iron mines as are possessed by this company, once the necessary works shall have been completed so as to secure the full development of their resources. The "Aufsichtsrath" has, therefore, upon the recommendation of the direction, resolved to take immediate steps for completing, in the first instance, the three collieries, Erin, Hansa, and Zollern, with the necessary reserve of pumping power, so as to bring them to the capability of a regular steady production of at least 1000 tons per day at each colliery, and for that purpose to provide additional house accommodation for workmen at each place.

Only one-fourth of the 5 per cent. obligations (March, 1873, emission) were placed, the remainder being deposited as security for temporary advances from bankers. It is now proposed to give the option of converting the partial obligations into shares, for which purpose new shares will be created.

The "Aufsichtsrath" recommends the creation of double the amount of new shares required for the above purpose—450,000*l.* in all—the second half to be eventually placed as the "Aufsichtsrath" may deem necessary to provide additional capital for the completion of the works in the manner essential for their full development and secure rentability. Thus the capital of the company would ultimately stand at 1,245,000*l.*, showing an increase of 225,000*l.* beyond what was theretofore proposed, but subject, of course, to the yearly diminution of the obligation capital in accordance with the plan of amortisation. This contemplated further increase of capital is rendered necessary by the great increase in the cost of all materials and labour within the last couple of years, by the decision to provide at a large cost, but as a measure of real economy, for ample pumping power at each colliery, not only for the quantity of water at present to be dealt with, but for any probable increase of same, and by the provision of further house accommodation for a large number of workmen.

The direction has no hesitation in stating its conviction that the proposed additional expenditure is to be urgently recommended in the furtherance of the best interests of the company, and that the works when completed, as proposed, will represent an intrinsic (and yearly increasing) value greatly in excess of the whole amount of capital invested, and will, when all at full work, guarantee a steady amount of profits, which will be sufficient even in bad years to afford a good interest upon the whole capital, and in years favourable for trade and industry large extra dividends upon the share capital.

The profit and loss account up to June 30 last closes with a balance of loss on the working accounts of Ths. 159,672 10 6, in addition to which there are the sums written off for depreciation in value of stocks of ores at Vulkan ironworks and the iron mines, Ths. 57,500 10 8; for bad and doubtful debts, Ths. 7840 9 3: for the usual writing off in accordance with the statutes, Ths, 67,354 18 5=Ths. 132,695 8 4; and further for interest and amortisation of the priority obligations and loss of course in emission of new obligations, Ths. 105,524 6 2, making a total of Ths. 397,891 25 to cover which it is proposed, with the consent of the general meeting, to apply the balance of the special reserve fund standing in the balance-sheet of last year with Ths. 131,407 10, and to take the rest, Ths. 260,484 15, from the general reserve fund, which stands at Ths. 360,000, and would by that means be reduced to Ths. 93,515 15: 73 numbers of the partial obligations of the first emission and 100 numbers of those of the second emission are to be drawn by lot at the present general meeting, in order to be paid off at par on July 1, 1875.

The resolutons sanctioning the financial arrangements and creating the new capital, and the numbers of the obligations drawn for amoitisation, will be found in our advertising columns.

BLUE TENT CONSOLIDATED GOLD MINES OF CALIFORNIA.

The adjourned meeting of shareholders was held at the offices, Austinfriars, on Monday,

Mr. J. Irving Courtenay in the chair.

Mr. W. J. Lavington (the secretary) read the notice convening the meeting.

The Chairman said, in consequence of his absence from England, the meeting on Oct. 19 was adjourned in order to give him an opportunity of stating personally his impressions regarding the present condition and prospects of the company's property. Since then a full report from the superintendent (Col. Tozer) had come to hand, and a copy forwarded to each shareholder; that report went very fully into every detail, and, though he should have occasion to go over the same ground, he need not go so minutely into every partilar. They left England in July with the intention of making a mining tour through certain portions of California and Nevada, in which he was especially interested, and in pursuance of that object he paid two visits to Blue Tent. They stopped at a station on the Central Pacific Railway, known as Emigrant Gap, close by the head of their ditch. This station is within a few miles of the Ditch Camp. He said "they" because he had the good fortune to be accompanied by a gentleman, a shareholder in the company, but who, unfortunately, was not present to-day. Emigrant Gap station was within a few miles of the head dam, from which flowed the water through and over the whole of the flume that was then constructed. There were nearly two miles finished; its situation is not easy to describe; it was of very large size, and wound round a precipitous mountain. He could not speak too highly of the ability and zeal displayed by Col. Tozer in the construction of this flume. It was a work of very great difficulty, and in many cases attended with a certain amount of danger. Some of the shareholders were anxious about this flume during the winter months; there need be no alarm at all about it, because, although there were heavy snow slides, every precaution would be taken to ensure its safety, and there was the fact that the flume of the South Yuba Company had existed in a good condition for some fifteen years, and another of the Omega Company. Of course, from time to time it would need to be repaired; but, in the opinion of those skilled in such work, the flume at Blue Tent was one of the best ever constructed in that part of the country. From the head down to Blue Tent, where the mines were situated, was a distance of about 27 miles. They saw the tunnel contractors, who were most excellent fellows, and had done their work so far well. They had not, however, earned much by it, because the rock varied from day to day. At Diamond Creek, where there were extensive gravel deposits, they proposed to sell surplus water, and, according to the estimates of the surveyor, Mr. Uren, the ditch would be constructed further than the Diamond Creek with a capacity of 5000 inches of water, and he proposed to carry a ditch of that capacity opposite Omega town, because they would find a good market for the water there. From this point Rock Creek was about 14 miles, to which place they proposed at present to carry only 3000 in. of water. The most expensive portion of the work had been done—that is, about 3 miles of the flume. He instructed Col. Tozer to get from Mr. Uren estimates of the cost of completing the work from the mouth of the tunnel to the mines, but to this point he would refer presently. The whole property was magnificently situated for this class of hydraulicing; there were several ravines and rocky gorges leading down from the top of the mountain to the South Yuba river—the fall was about 1400 feet. These gorges ran down to the river below. It was in these gorges they placed their sluices, &c., to catch and save the gold. There were many gravel deposits which could not be worked because they were without the necessary falls to enable the gravel to be broken up. It was this which they considered one of the great desiderata of their valuable property. In the Enterprise claim the gravel was of no less thickness than it was estimated—500 feet—which had to be taken in "benches" of about 250 ft.; in the course of time they would wash off this top dirt, and then begin to wash the bottom dirt. The aspect of this portion of their property was somewhat singular—it struck him as resembling the slate quarries of Lord Penrhyn, where the bank had been removed enormous masses were left, having resisted the action of the water. The difference of the aspect of the Enterprise claim to that of the quarries he had referred to was that the former was far more grand, and he only hoped that it would become as remunerative. He found the water supply was insufficient to keep them running for even twelve hours. He was never tired of looking at the extraordinary effect produced by the action of the hydraulics—the water came out of the nozzles like a bar of steel, and its cutting and disintegrating effect upon the bank was something marvellous. The South Yuba was an extremely interesting visit, because in that pit they were washing to bed-rock. It was necessary to complete a bed-rock tunnel here, which had taken a much longer time than expected—they found the gravel cement so hard that the water could not be got to play upon it, and it had to be removed by means of powder. The pit was not thoroughly opened—the space was too circumscribed—so that there was not room for the men to work; the superintendent, in his last letter, had informed them that a very large blast of powder had been made to shake up the hill, and that it had been fired most successfully by electricity, and with most satisfactory results. He trusted the South Yuba claim would yield more satisfactory results than last—he could not see how very well it could be otherwise, because he did not consider that claim was then in a proper working order, nor would it be until they had worked further back into the channel. A matter of importance was the condition of the South Yuba river; every year it was filled up with "tailings," but every spring the melting of the snow brought down such torrents of water that they swept everything before it into the Sacramento river and the Bay of San Francisco; therefore, there need be no fear of a want of outlet or choking up of the South Yuba river. The property was surrounded by properties worked and owned by American companies. On Oct. 3, he re-visited Blue Tent, accompanied by Prof. Price, of San Francisco, with whom he spent several interesting and instructive days tracing the gravel deposits of California. He mentioned this because some shareholder had asked, Was the property of our company on the so-called blue lead? He had by him a map, which showed very clearly the course of that gravel deposit. With Prof. Price, he traced it from a point south of Placerville, past Dutch Flat, You Bet, through the Blue Tent, on to Sweetland Creek—the distance being as the crow flies about 40 miles, and forming the bed of an ancient river. Blue Tent was situated very nearly in the centre. The Californians had spent millions of dollars in works like those now being carried on at Blue Tent, and one of the largest is in the neighbourhood of Placerville; the Californians carried on the work with more spirit than the English companies, knowing that time was money. As regards the question of lakes, which were the great store-houses for water, they had located some five or six, varying in size—he thought the largest was called the French lake, which was said to be over 100 acres. He (the Chairman) instructed Col. Tozer to erect a dam some 16 ft. high, which he saw by Col. Tozer's report had been done—this would immediately make a great addition to their stock of water. The only way to prolong washing operations was by storing the water in these great natural reservoirs. He trusted when the ditch had been finished they would obtain a large addition to their former supply of water. The question was, what time would it require to bring all this into full working order? The works were very extensive, and they were bound by the season. The gross produce this year had been over $60,000, and nearly the whole from one claim—the Enterprise—working only a short period during the year, because the first period of the year was occupied in washing away an old channel, so as to get a good outlet; that was unprofitable work, but it had to be done. As to the South Yuba claim, that was not worked for the reason he had stated. It was worked only for 21 days, so that the gross produce of $60,000 was almost entirely from the Enterprise claim. He looked upon that as a very satisfactory result, because it gave strong proof that with free water handsome profits would be realised. There had been spent in fitting up these claims, and in running them, 15,000*l.*, of which the claims themselves had furnished 12,000*l.*; the balance was sent over from this side; 4500 ft. of the sluice had been constructed, 6 ft. wide and about 2 ft. high; five under-currents, 36 ft. long and 20 ft. wide; four others, 36 ft. long and 16 ft. wide; 27,360 ft. square in blocks for false bottom; and iron-piping 1692 ft., of 14 in. average diameter. There had been expended upon the ditch above 8500*l.*, but there had been constructed about 3 miles of the most expensive portion of it. The object of this was to bring in a sufficient amount of water to work the property, and until they got the increased quantity he did not think the property would have had justice done it. When he came home he determined to obtain the necessary capital to complete the ditch. The estimate for completing the ditch from the mouth of the tunnel to the mines was $45,125, or (say) 9000*l.*, but Mr. Uren has added 10 per cent. for contingencies. A few days after his return he had an opportunity of considering an offer for furnishing 10,000*l.* on debentures at 12 per cent. interest, which offer the directors had accepted. It was a very good rate of interest, and the company could well afford to pay a good rate of interest for a lump sum to complete such a valuable work as the ditch. They had set apart 10,000*l.* in shares for those gentlemen who had taken up the debentures if they should wish to change them into shares. He would, no doubt, be asked what the property would pay next year. He would much rather say nothing upon that subject, but he would say, looking at what other gravel deposits did pay, and judging from what one claim had done, that when the double supply of water had been obtained he did not see how the property could not pay, and pay handsomely. Things might happen which nobody could guard against, but looking at it now, and what had been done, they might safely calculate that a very good return and profit would be realised. He concluded by moving that the best thanks of the shareholders be given to the superintendent, Col. Tozer, for no man could show more untiring zeal or be more assiduously attentive to the interests of the company. Col. Tozer shrank from no hardship or labour.——Mr. Elgar seconded the proposition.

The resolution was put, and carried unanimously.

Mr. F. W. Mansell had much pleasure in proposing that the best thanks of the shareholders be given to the Chairman for his graphic and interesting description of the company's property, and for the confirmatory evidence he had adduced as to its inherent value and prospects of permanent success.——Mr. Bowe seconded the proposition, which was put and carried unanimously.

The Chairman, having appropriately acknowledged the vote, stated that he went to California to see these properties, and if the journey had been three times as rough he should be delighted to go again rather than not see them. It was most interesting, and anyone who could take the journey should do so, especially those holding a stake in the gravel companies.——The meeting then separated.

NEW PACIFIC MINING COMPANY.

The annual general meeting of shareholders was held on Thursday, at the offices of the company, Austinfriars,

Mr. J. Irving Courtenay in the chair.

Mr. W. J. Lavington (the secretary) read the notice convening the meeting. The statement of accounts, which had previously been circulated amongst the shareholders, was taken as read.

The Chairman said that on his way to California in August last he had arranged to meet Mr. Pringle, who was the superintendent of the company, at Battle Mountain, which is a station on the Central Pacific Railroad, about 95 miles distant from Austin, where the mines of the company are situated. He (the Chairman) had not then visited the mines, because he wished to defer the visit to the latest possible period before his return home. At that time Mr. Pringle considered the prospects of the company more encouraging than at any time previously during his management. He was then driving on the supposed North Star strata 466 ft. level, and hoping daily to strike the North Star lode. They were getting beautiful pieces of detached ore, assaying as high as $1000 per ton, and he hoped that by driving further east he would be able to strike the North Star ledge. He (the Chairman) had heard a short time afterwards from Mr. Pringle that he had unexpectedly met with a break, and that it had been necessary to abandon that particular point. There were other points at which work was being done at that time, but before his arrival in Austin all these points had either been abandoned or the ore had been worked out. It was early in October when he had visited Austin, and he had certainly never driven over 95 miles more bleak or more barren than the distance of road from Battle Mountain to Austin. He had every reason speak of the kindness and attention shown by Mr. Pringle, who did everything in his power to make the journey as pleasant as he could, but he would never forget the dreariness of the scene. Shortly before their arrival at Austin, towards sunset on the third day after leaving Battle Mountain, they were about six miles distant from Austin, but they could not as yet see it, because it is situated in such a position as not to be visible until the traveller comes right upon it. Before arriving there Mr. Pringle had drawn his attention to what he said was the Mettacom Mill. He (the Chairman) could not see it for a considerable time, but at last he had made out a brown spot on the side of the mountain, which turned out to be the Mettacom Mill. He had afterwards visited this mill, and would, therefore, have something further to say about it. They made their way to Austin, and to give the shareholders some idea of the country, he might mention that just before arriving there they had seen the ruins of a town which was some few years ago—a very few years ago—a very flourishing town. Nothing now remained of this flourishing town but a few dust heaps and a graveyard, about which he would mention a story which had been told him at Austin. When Austin first became a mining camp people rushed to it from all parts, and in those times it had been a very rough camp, and one of the miners announced to his friends his intention of going to Austin. He was asked his reason for going to Austin, to which he replied that he was going to start a new cemetery. He did so, and was the first buried in it. The town itself is a very lively and flourishing mining camp, and he had no doubt that in time to come Austin and the surrounding districts would be very favourite mining spots. Immediately on his arrival at Austin he had gone underground, and had inspected all the work going on. At that time there was a level being driven from the 300 ft. level 225 ft. to the west of the shaft on the course of the ledge. They were hoping to strike the body of ore in this level, and by the latest advices they had learned that the ledge had been cut, but very narrow, only about 3 in. in width, and the ore was of a poor quality. The rock at this place was very hard, and it had pinched the ledge below its usual size. Again, below the 400 ft. level, on the North Star ledge, 600 ft. to the west of the shaft, they were taking out ore. There were two ledges at this point, one 4 in., the other 6 in., in thickness. That point still produces some ore. There was a false level being driven 250 ft. west of the air shaft, and a little ore had been got here in the bottom. He had found stoping in progress 40 ft. below the 400 ft. level, at a point 740 ft. west of shaft. There were at this point two stratas, making together about 12 in. of ore, and the value, by the last working, was about $110 per ton. Most of the ore at that time was being taken from that point, and by the latest advices the directors were informed that ore still continues to be taken from this working. At the same point, driving west, they were also stoping, and he had found men clearing out and re-timbering another point to the west of the shaft, and some 850 ft. on the 400 ft. level. There was still another point at which work was being done; that was they were sinking an incline 850 ft. west of the shaft, and below the 400 ft. level. Though there were so many points being worked there were but a small number of men engaged; the average was from 18 to 20 men, but when he was there there were only 11 men at work, out of which number four only were paid by the company, the remaining seven were tributers.

Mr. Sutton: May I ask what proportion the tributers have?——The Chairman: They have 50 per cent. of the net yield of the ore. The tribute system was one which had been worked most successfully at Austin, and it was one which Mr. Pringle had worked in the mine.

A Shareholder asked whether the 50 per cent. was to each tributor or to them in a body?——The Chairman replied that the 50 per cent. was given to two, or three, or more men forming a sort of company, and they were dealt with as a company. He had had calculations given to him by the bookkeeper in Austin, whereby he assumed that this company had saved by this system in the last year quite $18,000; that was to say, that if the dead work, prospecting and cross-cutting, which had been done by the tributers in the hope of finding something to pay them for their labour, had been paid for by the company by day labour it would have cost them that amount; and he (the Chairman) had no doubt that that would have been the case. The tributers evince faith in the mine, because they continue to work on day after day and month after month, and had as yet got but very little for their trouble. He had seen some of them who had worked for months, and all they had got had been a few bags of ore. They continued to work as long as they got sufficient to provide them with food and their usual expenses, trusting entirely to the hope of making a strike. He had found that they were consuming

one cord of wood per day, at a cost of $12. The quantity of water being pumped was 7400 gallons, but the machinery was very much strained to do this. The machinery was working properly, but it was fully occupied and was quite unfit in his (the Chairman's) opinion to carry the shaft down any deeper into the mine. He would ask the shareholders to consider what had been produced during the past year. He would take it in this form :—He found that the gross weight of the ore raised was 129,561 lbs., and the value of it $12,290. Against this they had got to set the reducing charges, which amounted to $2009, the discount on the bullion amounting to $641, and then the division with the tributers. He found that the tributers earned $4790, and still they carried to the account of the company $4684; so that all they got out of this ore working under this system was $4684, or a little under 1000*l*. (926*l*.) Since his departure a statement had been received as to the last quantity of ore worked; that was for the week previous to Nov. 21, from which it appeared that 6 tons had been worked, and that the value was as follows :—1060 lbs. of first-class ore, valued at $353 44 c. per ton; 11,350 lbs. of second-class ore, valued at $98 95 c. per ton; and Mr. Pringle further stated that there was 4 tons on hand not yet assorted. The cost of the mine was about $1500 per month, showing a loss of between $800 and $1000 per month—that was to say, that the company, working on the tribute system, and producing the quantity of ore he had mentioned, were standing at a monthly loss of something under $1000. Mr. Pringle stated that since he (the Chairman) was there there had been no material change in the mine. They estimated, when at the mine, that they must look forward, unless the grade of the ore improved, or a richer ledge than that at present was opened up, to an average loss per month of that amount. No mine could be worked more economically than this mine was worked. To work a mine in such an expensive district as Austin, and to cost only about 300*l*. per month, was a very rare thing. Every economy had been practised, both in the office arrangements and at the mine, and he did not see that any further saving could be made, although Mr. Pringle hoped that by letting down some piping in the 400 ft. level, to ventilate two points 600 and 800 ft. west of shaft, which would save, perhaps, a large amount of fuel he has to buy. Wood is very expensive there, especially during the winter months, and as the company have very little capital to get in a stock, Mr. Pringle has to buy as he wants the wood, therefore, if the roads were bad in winter the price goes up at once, and it would be a great thing if the company could do with half the ordinary amount of wood, as Mr. Pringle anticipated. He found during the year they had sent out to Mr. Pringle 2000*l*., or, as it appears in the accounts, $9239. Well, they had actually taken out of the mine $12,290, but the company got such a little out of the ore as to leave it at a loss per month. There was a quantity of base ore in the mine, of which he had brought some specimens. (The specimens were handed round the room for inspection.) The average value of the low grade ore was $40 to the ton, which would not pay for working. It might seem a strange thing that $40 ore would not pay, but such was the case.

Mr. SUTTON said he could easily imagine that to be case in such a very expensive country as that appeared to be.

The CHAIRMAN, continuing, said—No doubt in a few years time the ore would be worked and made to pay. What was wanted at Austin was a railway, and he did not think that until a railway was constructed that the low grade ore, or the ore produced from many of the mines in the neighbourhood of Mettacom Mill could be made to pay, when the high prices of timber and all other supplies were taken into consideration. He had been informed that an Act for a railway had been opposed by the Governor of the Legislature. The railway would run from Battle Mountain to Austin, but the Governor of the State vetoed the Bill. He happened to be out there when the elections were about to take place, and the opponents of the Governor said that the reason why he vetoed the Bill was that he was very largely engaged in the beef trade, and that if a railway were to be constructed by bringing down the prices of cattle, it would materially interfere with the profits which he and others were making. Be this as it might, there could be no doubt that until this railway was constructed mining at Austin must be carried on under very great disadvantages. None but the rich ore could be made to pay to work it. Another day he had been on a visit of inspection to the Mettacom Mill, which was a few miles distant from the mine. He could not understand how anybody could have committed such a folly as to have placed the mill where it now stands. This was not done by either the present or the old company, but he believed it was built by adventurers from the Eastern States of America. It was substantially a good mill, but from its position utterly thrown away. It was difficult to know what to do with it; it could not be properly supplied with ore, and if pulled down and sold would hardly realise anything. The Empire building had also engaged their attention, this was built by some Boston adventurers and had been completely undermined by floods, and had it not been pulled down would have fallen. Taking the various matters into consideration they had discussed the best policy to be adopted by the company. Assuming that no improvement took place in the mine, he had asked Mr. Pringle whether with the present capital there would be enough to go on with three or four months, and Mr. Pringle thought there was. He wished to ascertain the views of the shareholders, because it was no good going on and leaving the concern in a bad state. The 2000*l*. sent out had not been more than sufficient to keep the mine free of water. He had taken the trouble to inform himself of the prospects of the other mines on Lander Hill, and he had come to the conclusion, about which there could be no doubt, that there was plenty of ore there. The Manhattan Mine looked better than at any previous period; and this company was deeper than the New Pacific Company, but the ore was as good as it had ever been. A mine called the Florida had lately made a very successful strike, and he had a specimen of the ore present; it was first-class ore, worth $700 per ton. The specimen produced would, no doubt, yield a larger proportion, but the piece had been selected from a heap. The second-class ore from the Florida Mine was worth $200 per ton. It was, therefore, not improbable that the grade of the ore would improve as the mine became deeper, but of course neither he nor Mr. Pringle could say anything more on the subject. They could only lay the facts before the shareholders, and leave them to judge as to the future policy to be adopted. The balance-sheet presented had been made as complete as possible, and he was not aware that it needed any comment, but if any additional information should be required he would be most happy to give it. In conclusion the Chairman moved the adoption of the statement of accounts.

Mr. C. CURTIS (a director) seconded the motion.

Mr. J. S. CURTIS asked if he had understood the Chairman to say that the $40 ore would not pay at all?

The CHAIRMAN replied in the affirmative. If lumber and freight were cheaper it would pay, but not as things were at present.

Mr. SUTTON asked how it was that there were calls unpaid to the extent of 197*l*. 2s. 1d. upon shares upon which only 7s. 6d. had been called.

The SECRETARY, in reply, said one amount had been paid on account, and that was the balance.

Mr. SUTTON enquired if any of the calls had been paid subsequently?—The SECRETARY said the accounts were made up to Nov. 30 in England, only about a fortnight ago. None had since been paid.

Mr. SUTTON: Are they of any value?—The SECRETARY said they were of value.

The CHAIRMAN, in reply to a further remark, said it would be well either to go lower down, or to close the mine. Fresh machinery would have to be got, or taken from the Mettacom Mill. A shaft could not be sunk with the present capital. It would take 4000*l*. or 5000*l*. to sink a shaft and do the necessary cross cutting.

Mr. CURTIS (director) said at present only 1700*l*. had been spent on the mine, the bulk of the money had been spent in getting the water out of the mine. Of course no person could have foreseen what sort of ore would have been produced when the company was formed.

After a short discussion the accounts were adopted.

On the motion of a shareholder the retiring directors, Messrs. J. I. Courtenay and J. Archer, were unanimously re-elected. Mr. A. Good (auditor) was also re-elected. A call of 2s. 6d. per share (making the shares fully paid-up—10s.) was made, payable at the Alliance Bank on or before January 19, 1875.

A cordial vote of thanks was accorded to the Chairman for the great interest which he had shown in the property by spending a considerable time in visiting it, and also for his courteous conduct in the chair.

The proceedings then terminated.

SOUTH ROMAN GRAVELS MINING COMPANY (LIMITED).

A special general meeting of shareholders was held at the company's offices, Austinfriars, on Thursday,

Mr. ROBERT WILSON in the chair.

Mr. FRANKLYN (the secretary) read the notice convening the meeting.

The report of the directors (which appeared in last week's Journal) was taken as read.

The agents' report, as follows, was read :—

Dec. 16.—Shelfield: On cutting tip lodge under the 20 we were under the necessity of stripping down the lode not carried in the last 2 fms. sinking of shaft. In so doing I am pleased to inform you that we have met with a rich mixture of carbonate of lime and lead ore. We have cut into the lode 6 ft., and have not yet reached the footwall, consequently cannot give its size and value; this I hope to do in next report. The lode in the 20 east is quite 4½ ft. wide, and is improving daily; I believe we shall soon have a good run of ore here. In the 20 west the lode in the forebreast does not look quite so well as last reported, now worth 20 cwts. per fathom. There is a tie in the cavity which seemed to have caused the change; we shall soon, however, be through it, when I believe we shall find the lode equally as good. The lode in the 10 west is of a most promising character, and is yielding nice stones of ore.—JOHN W. POWNING.

The CHAIRMAN said it afforded the board much pleasure to meet their fellow-shareholders upon the present occasion. Since the last meeting the North Tankerville engine had been purchased upon favourable terms, and has since been erected. Some delay had arisen owing to the weather, and the difficulty of getting masons, but everything was now progressing in a satisfactory manner. He did not know that the directors could tell the shareholders more than had appeared in the reports, but Capt. Powning, the agent, was present to reply to any question that shareholders might desire to put, and would also point out the places whence the different specimens of ore upon the table had been taken; those taken from the bottom of the shaft were most promising in character. The principal business to-day was to consider the present financial condition of the company. They were 42*l*. in debt, after paying the cost-sheet for November; but there were 2730 unissued shares, which the directors proposed to offer to the shareholders at 1*l*. per share, 5s. to be paid on application, and the remainder to be paid in instalments of 5s. each, at an interval of three months. The directors would take their proportion upon the condition that the shareholders took theirs. Several large shareholders had already signified their intention of taking their proportion, which, with the directors, would absorb nearly 1000 of the 2730 unissued. He then moved that the report be received and adopted.

Mr. J. Y. WATSON, F.G.S., seconded the proposition.

Mr. BROWN asked how many shares were taken at the last issue?

Mr. FRANKLYN said that of the 6000 shares 3300 were taken.

The CHAIRMAN, in reply to a question, stated that the shares would, in the first instance, be offered *pro rata*; but if not accepted on or before Jan. 10 any shareholder would be entitled to take a larger number than his proportion, and this might be of considerable value in the event of any improvement taking place in the mine, which might be the case at any moment, when the shares would in all probability command a premium.

A SHAREHOLDER asked, in the event of the whole of the shares being taken up, if sufficient capital would be provided to erect the necessary appliances for dressing purposes?—The CHAIRMAN said that it would not be sufficient to provide dressing machinery upon a large scale for the slimes and the poorer ores. If they obtained anything rich it could be broken down by hand and dressed by hand jiggers. Until the mine had been more thoroughly developed it would not be worth while to erect dressing machinery. He added that all Mr. Beaumont's mines in the North of England were worked by hand jiggers. They had not yet sold any lead, and the capital had been chiefly expended in erecting the necessary machinery. They were now arriving at an important depth, as it was about 30 fms. below adit that the Roman Gravels and Tankerville Mines made large deposits of ore, and yielded large profits.

Capt. POWNING, in reply to a question, stated that the matrix was similar to that of the best lead mines of the district—carbonate of lime.

The CHAIRMAN mentioned that cavities in the Tankerville Mine were invariably in immediate connection with the rich lodes; it was, therefore, a significant feature that a cavity had been met with in South Roman Gravels.

Capt. POWNING said that it was supposed to be the Wood lode in West Tankerville, which was very rich for 40 fms. sinking, and it was said to be very much like the great lode at Roundhill.

The CHAIRMAN mentioned that the Roundhill lode was at one time worth 10 tons to the fathom.

Capt. POWNING, referring to the cavity recently discovered, stated that the old miners had reported that there was a vugh near the surface, from the side of which large lumps of lead were taken, but he had not attached much importance that statement until now; and the recent discoveries seem to confirm the statement. The lode, accidently discovered while cutting the foundation for the engine, was supposed to be the Old Batholes or Hope Valley lode, and its bearing seems to confirm that opinion.

The resolution was then put and carried unanimously.

A vote of thanks to the Chairman and directors terminated the proceedings.

I. X. L. GOLD AND SILVER MINING COMPANY.

The ordinary annual general meeting of shareholders was held on Monday, at the offices of the company, 114, Palmerston Buildings, Old Broad-street, London,—The Viscount RANELAGH in the chair.

The notice convening the meeting was read by the secretary.

The Chairman laid before the meeting the accounts of the company and the directors' report.

Proposed by the CHAIRMAN, seconded by Dr. GILLOW, and resolved—"That the balance-sheet and report of the directors be received and adopted."

A long discussion then took place between the shareholders present and the directors as to the works at the mines, and the amount which had been expended there, during which several shareholders stated that they had every confidence in the mine, and in Mr. Lewis Chalmers, the manager.

Dr. GILLOW then proposed the following resolution :—"That the meeting hereby expresses every confidence in the value and prospects of the mine, and that every exertion be made to develope additional reserves of ore, and to bring them into a paying condition by the erection of a stamp mill and a Stetefeldt furnace."

This was seconded by Mr. BURBIDGE, and carried unaminously.

A vote of thanks to the Chairman and directors, for their gratuitous services since the formation of the company, was then moved and carried, to which the Chairman briefly responded, and the proceedings terminated.

GREAT WHEAL VOR UNITED MINING COMPANY.

A quarterly general meeting of shareholders was held at the offices, Gresham House, on Thursday,

Mr. J. O. HANSON in the chair.

Mr. J. J. TRURAN (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

The report of the committee of management was read, as follows :—

Since the last quarterly general meeting of adventurers, held on Sept. 10, the attention of the committee has been mainly directed to getting in the amounts for materials, &c., sold on July 7, collecting outstanding arrears of calls, pushing on the completion of flat-rods from West Metal to the engine at Edwards's shaft, the erection of launders to carry water to the old dressing-floors, cutting down West Metal shaft, and fixing pitwork in the same, so that operations in the western ground might be commenced as early as possible. The committee are happy to report the engine again at work, and the water in West Metal shaft already drained 9 fathoms below the adit level. The committee are pleased to see the gradual improvement in the metal market, and hope it may be maintained. The shareholders will see by the accounts already published that the cost for the quarter ending September last has been less than 200*l*. per month, including London expenses. This may be expected to increase a little now the engine is at work, in consequence of the additional cost necessary to unwater the western shaft, and enable the agents to develope the lode from that point. At the present moment there are sufficient funds in hand to carry on the operations at the mine, and before they are exhausted it is hoped one or more of the spare engines, as well as the balance of old materials on hand, may be disposed of.

The following is the financial state of the company this day:—

Balance in hand per audited accounts to Oct. 31		£ 412	4 10
Since which date there has been received—			
For materials, &c., sold at the mines		424	0 11
Tribute on tin sold from leavings		27	0 2
Sundry work to Michaelmas		8	10 0
Total		£ 871	15 11
And paid—			
Labour to Oct. 10	£143 6 11		
Labour to Nov. 7	142 19 4		
Money received on sale	26 3 7		
Printing and stationery three months	12 5 8		
Merchants' bills on account	3 12 8		
Sundries, postage, &c.	1 13 4=	330	1 6
Balance (cash)		£ 541	14 5
The actual account stands as follows :—			
ASSETS—Balance as above		£ 541	14 5
Arrears of calls		122	2 6
Old materials sold		477	6 0
Total		£ 1141	2 11
LIABILITIES—Merchants unpaid	£233 5 9		
Lords' dues	113 16 7		
Salaries, &c.	64 4 0=	411	6 4
Balance in favour		£ 729	16 7

The report of the manager was as follows :—

Dec. 16.—Since the last meeting we have completed the cutting down of West Metal shaft from the surface 2 fms. below the adit level, fixed bearers, and dropped an 11-in. drawing-lift to the bottom of the 10 fm. level, and fixed 13 in. pitch pine rods from the surface to the adit; also fixed footway, &c. At Edwards's we have completed the plunger-lift, for the supply of water to the dressing-floors, and have built bob-loadings both at Edwards's and West Metal shaft, which are of the most permanent nature, fixed strong bobs at each shaft, with a line of 10-in. pitch pine flat-rods from Edwards's to West Metal, a distance of 120 fms.; and yesterday we started the engine to work, and I am glad to say that everything is working most satisfactorily, so much so that we have forked 9 fms. of water, and by to-morrow morning we expect to run the 10 fm. level dry. Owing to the influx of water from the mines and the heavy rain that we have had of late we have been obliged to repair and clear the adit almost from end to end. Such not having been done for many years there was a large accumulation of stuff, so there was not sufficient water-way, hence the water raised a great many feet above the back of the adit. This we have now overcome; still we have a little more stuff to clear away, which we shall do before we leave it. I am glad to say in the course of a few days we shall be in a position to commence dressing the leavings, when we shall sell a little tin monthly. I calculate we shall fork the water at West Metal, and have the shaft cut down to the bottom, in four months from this time.—S. HARRIS.

The CHAIRMAN said that the report of the committee of management, as well as that of Capt. Harris, the manager, he hoped would not be considered unsatisfactory. After an interval of about eight months, the shareholders would be glad to have heard that the engine had been set to work, and the manager says it ,reminds him of the old times. He (the Chairman) hoped it might only be the forerunner of the old times, and that the success of the past might attend their efforts in the future. Progress had been made during the past quarter in developing the operations, and henceforth they would be of greater interest, inasmuch as after the water had been forked from the western ground the developments were hoped to present greater interest as progress was made. As to the tin market, he was happy to inform them that the price had gradually advanced, the improvement having been no less than 8*l*. per ton since the stoppage of the operations in March last; and if they considered the greater abundance of labour, as well as the prospect of cheaper coal as fresh pits were opened out, he thought they might fairly say that the corner had been turned, and that they might look forward to a period of prosperity. He was glad to inform them a fair and equitable arrangement had been made upon which a settlement had been arrived at with Mr. Divett, and on the same basis the committee hoped to settle with other shareholders who had relinquished their interest; and at the proper time the committee, acting upon the power vested in them, would effect a payment upon this basis. He had nothing further to add, but would be glad to afford any additional information which shareholders might desire. He then moved that the accounts be passed and allowed, and that the reports be circulated among the shareholders.—Mr. STEVENS seconded the proposition.

The committee of management were re-elected, with thanks for past services.

Mr. MOATES was re-elected auditor.

The CHAIRMAN said it was necessary to pass a resolution with reference to the arrears of calls. It would strengthen the committee's hands if the shareholders would pass a resolution that the necessary steps be taken, pursuant to the Stannaries Act, to recover the arrears of call, and that the next meeting be made special to consider the forfeiture of shares upon which calls were then unpaid.

Mr. TRURAN said there were only about 20 or 30 shareholders in arrear of call, and that the arrears amounted to 120*l*.

Mr. MARSDEN (a member of the committee), in reply to a question, said that no calls were contemplated at present.

The CHAIRMAN said that at the special meeting in August the committee were empowered, if necessary, to make a call to settle with the relinquished shareholders; but to-day it was not proposed to do so. There were some engines to dispose of, and they had in hand 700*l*.

A unanimous vote of thanks was passed to the Chairman and committee for the very great attention they continued to give to the company's interests.

A vote of thanks to the Chairman for his presidency upon this occasion closed the proceedings.

GORSEDD AND CELYN LEVEL CONSOLIDATED LEAD MINING COMPANY.

A meeting of the shareholders was held at the offices on Monday,

Mr. FRANCIS RUDALL, Jun., in the chair.

The Secretary (Mr. E. J. Bartlett) read the notice convening the meeting. The balance-sheet was exhibited, made up to Nov. 30.

The CHAIRMAN, in moving its adoption, commented on the comparatively small capital that had been employed in carrying on so important a development, and although the directors were about to ask for more money by a reconstruction of the company, still they did so with confidence, for, in addition to the present sett, a large and valuable addition of land was to be added. Attaching this was a great history, and it could hardly be doubted that before long the property would yield some good results. (Hear, hear.) The accounts were passed unanimously, and the meeting became "extraordinary," to take into consideration the proposition of reorganisation.

Mr. E. J. BARTLETT gave some interesting particulars of the new grant of land, and remarked that consents of nearly 5000 shares have been received to the plans of the directors.

Upon the motion of the CHAIRMAN, seconded by ROBERT MILNE, Esq., it was resolved—"That the company be re-constructed, under the title of the Gorsedd and Merllyn Consols Mining Company (Limited), with a capital of 18,750*l*., divided into 750 shares of 2*l*. 10s. each, and that 6094 of such shares be allotted to the old shareholders, 2*l*. paid."

Dr. BURT, in supporting the resolution, paid a compliment to the directors and secretary for the honourable way in which the affairs of the company had been conducted from the commencement.

Mr. MASKELL said it afforded him pleasure to express his satisfaction with the officials, as they had one and all done all that was possible to bring about success. He believed under the new form good returns would be made.

Mr. E. J. BARTLETT stated that he had received various letters, thanking the executive for the proposed plans, and he had the greatest confidence in predicting early returns.

A vote of thanks was passed to the Chairman, also to the secretary.

WEST WHEAL GORLAND MINING COMPANY.

A general meeting of shareholders was held at the London Tavern on Wednesday, Mr. E. SMITH in the chair.

Mr. J. H. MAYNE (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

The accounts for eight months ending with costs for October showed a debit balance of 121*l*., which added to the balance brought forward from the last account, made the debit balance 140*l*.

The report of the manager was read, as follows :—

Dec. 16.—I beg to hand you the following as the report of this mine, with the summary of the work done since the last meeting, also the present prospects. The continuation of the sinking of Messer's shaft has been proceeded with, and in the last 6 fms. sinking the lode has been 4 ft. wide, showing a better appearance for tin, and varied in value from 10*l*. to 20*l*. per fathom; this shaft is sunk 44 fms. from surface, timbered, cased, and divided down, we are, therefore, now in a position to draw from the bottom. West from the bottom of this shaft the 44 end is being driven with a full staff of men, with a view to reach the large bottoms, which is now 9 fms. further west than our present end; the lode in this end at present is split into two parts, and worth 10*l*. per fm.; in about 3 or 4 feet driving more from all appearances they will come together, when we may expect a change for the better. At the 30, 11 fms. west of the engine-shaft, the pitwork has been fixed, also the rods, air-machine pipes, &c., and the large bottoms cleared to the depth of 10 fms. and 4 fms. long. In clearing and securing this ground we did not make the progress at first anticipated, in consequence of the peculiar manner in which the workings were left, knowing that the ground was worked from here to surface, and the bottom filled with attle; every precaution had to be taken in putting suitable timber to secure the ground thoroughly. Since the completion of this work the bottoms have been sunk 2 fms. in a lode 9 ft. wide, worth 80*l*. per fathom, and is still being sunk. We have stoped down the old men's workings north and south to find the respective walls, and driven the end west 9 ft. in a lode worth 30*l*. per fathom; at present this end is suspended, as the stuff had to be drawn by a tackle 12 fms.; and when there is a communication effected from the bottom to the engine-shaft this lode can be taken away considerably cheaper. In order to reach this desirable object we have commenced to drive east towards the shaft with all possible dispatch; the part we are carrying is 4 ft. wide, and worth 35*l*. per fathom. The stope in the bottom of the 30 is worth 7*l*. per fathom. In this level we have driven a cross-cut north from the western shaft, cut the lode, also driven east and communicated to the north level for ventilation, also driven west on this lode 2 fms., which is letting out water freely, and producing occasional stones of tin; and we think it advisable to drive this level, as Chalcott's flookan is 50 fms. ahead. There is a large quantity of tin ground laid open on the south lode, which, with an advance in the price of tin, can be taken away remuneratively to the adventurers. In concluding my report, I beg to say that the mine at present is looking very well, better than at any period since it has been working, and there would have been no loss to-day had it not been for the various difficulties we had to encounter in going through the old workings, which I am now pleased to say are almost finished, and the bottom to the shaft, which is being pushed on with all vigour. This work accomplished, which will take about two months, we shall be in a position to increase our returns very considerably, and thereby dispense with calls. Every exertion has been made to bring the property into a profitable state with a due regard to economy, and looking at the present prospects of the mine, with a continuance of the same, in which I have every confidence, and although being by far the largest shareholder, it affords me great pleasure in stating that in the last two months working there has been a profit of 120*l*., and this done under the disadvantage of drawing the stuff from the bottom, which is 12 fathoms deep, by manual labour, augurs well for the future that we are opening up a valuable property that will be highly remunerative to shareholders.—JOHN MAYNE.

The CHAIRMAN said the sole business of the meeting was to pass the accounts, and to afford any information thereon, as well as with reference to the mine, which shareholders might require.

Mr. SMITH supposed that the lode which had been valued at 120*l*. per fathom had declined in value, as no reference appeared to be made to it in the report.

Mr. MAYNE, jun. (the purser), explained that, in accordance with the resolution passed at the last meeting, the lode was taken down, and a sollar put in; the bottom of the shaft had been reached, and they were now in a position to extend east and west. As soon as the communication had been made the returns would be increased considerably.—Mr. SMITH asked where the lode was?

Mr. MAYNE said that it was still standing, and they would not be in a position to take it away until the communication had been effected.

Capt. MAYNE said they would be doing an injustice to the mine and to themselves if they were to take it away now, for it would cost 11*l*. per fathom at present, against 6*l*. when the communication had been made. On the south lode there was a great quantity of tin ground laid open, and would pay as soon as tin improved in price. When tin declined in value he deemed it the more prudent course to suspend operations until a recovery took place.

Mr. MAYNE, in reply to a question, referred the shareholder to the report that they were working under very great disadvantages, but it could not fail to be satisfactory to know that the deeper the explorations were extended the richer the lode proved to be.

Capt. MAYNE reminded the meeting that when the mine was started the tin was 94*l*. per ton, but the last sale realised only 56*l*. 10s.

Mr. COLLINS suggested that in future a copy of the accounts should be forwarded to the shareholders prior to the meeting.

The CHAIRMAN drew attention to the fact that the accounts were charged up to October, and credit had been taken for the last sale of tin.

Mr. MAYNE explained that the accounts were made up in accordance with the plan adopted by the leading tin mines in Cornwall. It was always considered there was tin enough on the floors to meet the costs uncharged.

The accounts were passed and allowed, and with the report were ordered to be entered on the minutes.

Capt. MAYNE said there was sufficient tin in the mine unbroken to meet the two months' costs, and a call of 4s. per share would produce 120*l*. He thought the next time they met the shareholders would have a very much better state of things than that now presented, and if he had not the greatest confidence in the mine he should not carry on one third of it himself.

Mr. MAYNE said there had been no shares relinquished, and he had made an offer to a party who held 160, but they would not sell them.

Capt. MAYNE said that if the whole of the shareholders were to give up their interest they (the Messrs. Mayne) would carry it on themselves. The mine was open to the inspection of anyone, and every facility would be afforded for so doing.

Mr. COLLINS suggested that a copy of the accounts should be sent periodically to each shareholder, so as to show how the money was being spent.

Mr. MAYNE said he was quite ready to adopt that recommendation, although it

would be far better to send out the accounts once in three months, because tin mines, unlike copper and lead, sometimes met with unavoidable obstructions in dressing, and the stuff could not be prepared for market so quickly.

Mr. SMITH asked if there was anything new with reference to the Cathedral lode?

Capt. MAYNE believed it was still looking well. Several of the Cathedral lodes passed through West Gorland. The Cathedral lode was looking well, and they had sold copper for nearly 20*l.* per ton. The intention was to drive to cut three parallel lodes, but not until they could raise tin enough to meet the additional cost.

It was agreed that a copy of the accounts be sent out to the shareholders each three months.

The CHAIRMAN said the meeting could not separate without recording its best thanks to Capt. Mayne for the satisfactory manner in which he continued to develope the mine.

Mr. COLLINS seconded the proposition, which was put and carried unanimously.

Capt. MAYNE said it afforded him very great pleasure to find that he continued to have the confidence of the shareholders, and he need hardly say he would continue to merit it. As a holder of one-third of the shares, he should, of course, have been much more delighted if, instead of a call, a dividend had been declared; but he hoped the next time they met, if the lode continued, the position would be of a much more satisfactory character. He was sure, if the lode continued, they would be in a position to give a dividend, as the mine was improving in depth, and its prospects were gradually improving.——The meeting then separated.

WHEAL KITTY (ST. AGNES).

The quarterly general meeting of the adventurers was held at the office of the company, Austinfriars, on Thursday,

Mr. CHESTER CHESTON in the chair.

The secretary (Mr. J. Hickey) read the notice convening the meeting, and the minutes of the previous meeting, which were confirmed.

The statement of accounts, which was taken as read, showed that the cost for the quarter ending September amounted to 2318*l.* 5s. 3d., against which on the credit dit side appeared 2920*l.* 16s. 3d. for 49 tons 3 cwts. 16 lbs. of tin sold. The first price realised was 57*l.* 10s. per ton, and the last sale 59*l.* 10s. The profit remaining was 602*l.* 11s. The balance sheet showed that the liabilities were 1351*l.* 8s. 7d. to merchants' and 131*l.* 4s. dues. The assets were—bankers, bills receivable, &c., 2185*l.* 9s. 11d., leaving a balance of 707*l.* 7s. 4d., out of which the directors recommend the payment of a dividend of 2s. 6d. per share, absorbing 536*l.* 17s. 6d., and to carry the balance forward to the next account.

The following reports from the agents were read:—

Dec. 12.—New Shaft—Pryor's Lode: In this shaft sinking below the 142 we have intersected a branch, carrying with it a hard capel, which retards the speedy development of the ground. The lode in the 142, driving west of shaft, is worth for tin 10*l.* per fathom. In the 142 east, driving south, we have not yet met with the lode.—Caunter Lode: In the 142, driving north of the shaft, the men are desuing the lode. The lode in the 130, driving west of shaft, is worth for tin 14*l.* per fm. The lode in the 130, driving east of shaft, is poor. The lode in the winze sinking below the 130, west of shaft, is worth for tin 8*l.* per fathom. The lode in the 118, driving west of shaft, is worth for tin 13*l.* per fathom. The lode in the 106, west of shaft, is worth for tin 8*l.* per fathom. In the 20, east of shaft, no lode has been taken up since last reported. In the north adit level, driving west of the eastern boundary, the lode maintains its size and character as for some time past.—S. DAVEY, J. WILLIAMS.

Dec. 13.—Pryor's Lode: The new shaft is being sunk about 9 fms. under the 142, and we hope to reach the 154 in another three months, or nearly so; we cannot speak positively, as we have the winter months, which are necessarily wet ones, to contend with, but our best will be done to effect the completion in the time mentioned. In the 1 fm. level, driving west of new shaft, the lode is worth for tin about 10*l.* per fathom. In the 142 east we are cross-cunting south in search of the lode which we believe to be thrown in that direction by a gossan, but hope shortly to reach it. In the 142, on the caunter lode driving north, the lode is worth 6*l.* per fathom for tin. In the 130, driving west of shaft, the lode has a most promising appearance, and worth for tin 14*l.* per fathom. In the 130, driving east of shaft, the lode is producing saving work for tin. In the 118, driving west of shaft, the lode is worth for tin 14*l.* per fathom. In the 106, driving west of shaft, the lode is worth for tin 8*l.* per fathom. We shall resume the driving of the 90, on the old lode, in the coming week. In the 20, driving east of shaft, the lode is yielding good stones of tin. In the eastern adit, driving west of boundary, the lode continues of a most promising character. Our prospects are much the same as for some time past, but we sadly want an improved price for tin, which is certainly a long time coming.—W. TEAGUE, STEPHEN DAVEY, JOHN WILLIAMS.

The CHAIRMAN was very pleased to be able to present such a favourable report and balance sheet, more especially when the circumstances attending mining generally were taken into consideration. The prospects of the mine appeared to be as satisfactory as at any period of its existence, and if the prices for tin improved the mine would, doubtless, pay good dividends. He moved that the report and accounts should be received, adopted, printed, and circulated amongst the adventurers.——General CLARKE seconded the motion, which was carried unanimously.

On the motion of the CHAIRMAN, which was seconded by a SHAREHOLDER, a dividend of 2s. 6d. per share was declared, payable forthwith.

The meeting then concluded with a vote of thanks to the Chairman.

NEW QUEBRADA COMPANY.

The general meeting of shareholders will be held at the City Terminus Hotel, Cannon-street, on Tuesday.

The report of the directors state that the account furnished by the directors of the Bolivar Railway Company as to the progress of the works may be regarded as fairly satisfactory. The agents of the company, as well as the engineers of the Bolivar Railway Company, are unanimous in their praise of the energy displayed by the contractors, who are doing their utmost to push on the work. The directors are glad to be able to report that ore is now being extracted from the AROA Mine, and that Mr. Richardson's communications, as well as those of the other officials at the mine, evince unabated confidence in the resources of the company's property, and their capacity for fulfilling the reasonable expectations of the shareholders. All the litigation with which the company was threatened, and which has been the cause of much uneasiness and anxiety, has been finally settled on terms which cannot fail to be satisfactory, and there now remains no kind of dispute or difference relating to the company's affairs. An entire freedom from litigation or contention has been unknown to this company for many years, but it has now happily been accomplished. It has been thought necessary to make financial arrangements for working the mines, and by means of these the directors believe that a sufficient supply of money is secured for all the company's needs, until ore can be brought to market, and the company's natural sources of profits realised. This advantage has been obtained by an arrangement, the terms of which will be fully explained at the meeting. The repayment is to be secured by the issue of debentures, with the option at any time, during the continuance of the loan, of taking the company's shares at par. While they wish it to be clearly understood that the means are secured to the company to raise the whole of the required loan, the directors have retained the right of offering to the shareholders individually to make the whole or any part of the advance in sums of 100*l.* or upwards, secured by debentures carrying interest at 8 per cent. per annum, and with the option to the holders of such debentures of taking shares at par at any time during the subsistence of the loan.

[For remainder of Meetings see to-day's Journal.]

QUARTZ MINING AT GREAT DEPTHS.—The question of whether or not quartz reefs will be found profitable at any considerable depth from the surface of the ground is still occupying public attention. Amongst the miners and the residents on the gold fields there is a settled belief that quartz lodes may be worked to almost any depth, and that what is being done now is a mere scratching, comparatively, of the surface. Indeed, the converse of the old theories, that quartz veins are mere shallow wedges of stone, is widely entertained, and confident assertions are made that the miner has only to sink deeper to get richer quartz. On the other hand, there are still to be found many who maintain that quartz lodes are chiefly gold-bearing at or near the surface, and that as great depths are reached the gold will be found to nearly, if not quite, disappear. Between these two classes of positive philosophers there is another class, not of a negative character exactly, but which asserts stoutly that with all the work done, here and elsewhere, there is not sufficient evidence to warrant any positive statement as to the formation of the lodes themselves or the distribution of gold in them. There is, undoubtedly, a great deal of evidence which goes to prove that quartz lodes become poorer in gold as comparatively great depths are reached. Anyone familiar with the mining history of the colony can readily recall a large number of quartz claims which were rich on the surface, or at a short distance from it, which have been long since abandoned as unprofitable. Even districts once famous have been almost deserted by the quartz miner, and the thud of the stampers is no longer heard. To these facts some persons reply that the lodes were deserted because the shoot of gold had been worked out, and the mineowners had either not sufficient capital or faith to venture upon the deadwork of sinking and driving in search of it. In some, probably in many, cases this is an accurate explanation of the facts; but there are many, also, to which the reply is not relevant, the simple truth being that the claims were left because there was no hope that they could be made to pay. On the other side, there is also an array of facts of a very instructive character. When the Gold Fields Commission took evidence at Sandhurst, 11 years ago, some of the richest claim-holders were most positive in affirming that the lodes would not pay below the water level, say about 100 ft., and the commission reported against the probability of gold being found at great depths in quartz reefs. At Sandhurst this view has been proved to be altogether wrong. Though there was a pause there after the commission reported in the progress of quartz mining for a time, consequent chiefly upon the water level having been reached, it is now notorious that there was a revival, and at this day he would be a very bold man who would venture to place any limit upon the depth at which the lodes there will be found to be profitable. The North Old Chum Company, Sandhurst, have got a fine solid lode, yielding something like 2 ozs. to the ton, at a depth of 670 ft. The Great Extended Hustler's Company is working at a depth of over 600 ft., and the Golden Fleece Company hope to recover their lost golden stone at the 550 ft. level, and at a much greater depth. The rich stone obtained by the famous Garden Gully Tributes was taken from depths of 300 ft. to 350 ft., and several other companies are working on Sandhurst at depths varying from 600 ft. to 700 ft. At Pleasant Creek, the Magdala Company's shaft is now 1446 ft. in depth, and although the lode sought for has not been got, there are so many favourable signs as to keep shareholders in good spirits. The Newington and Pleasant Creek Company's shaft is 1325 ft. in depth, and several others are being sunk in the full expectation of ultimately profitable results. At Clunes the New North Clunes Company have discovered a lode in the 1000 ft. level, in which gold has been seen. The Port Phillip Company's claim at the same place appears to be poorer in the lower levels, and the yields of late have fallen very low. In Ballarat, there are one or two examples of deep lodes which are exciting some interest amongst those who have studied the question of the depth at which quartz reefs may be considered to yield gold. In the Beechworth district, a depth of 300 ft. has been reached with moderate returns, and golden stone is being obtained at St. Arnaud at 460 ft., at Maryborough and Castlemaine at 300 ft., at Daylesford at 460 ft., and at Tarrengower at 550 ft. A summary of the facts at present known as to the depths at which reefs may be expected to prove payable shows undoubtedly that those who hold their judgement in suspense pending further information are right, and that it is wiser to do so than to adopt any opinion on the question—*Melbourne Argus.*

FOREIGN MINES.

SWEETLAND CREEK GOLD MINES.—The directors have declared a quarterly dividend of 2s. per share, payable on and after Dec. 24.

ALMADA AND TIRITO.—The directors have received 16,000 Mexican dollars by the Tasmania. The ley of the Mina Grande ores much improved.

ST. JOHN DEL REY MINING COMPANY (Limited).—Advices received Dec. 2, 1874, per Tiber (s.), dated Morro Velho, Oct. 29:—

GOLD PRODUCE TO DATE.—The produce obtained from the mineral treated during the second division of October, being a period of 12 days, amounts to 10,357·1 oits. It has been derived as follows:—

	Oits.		Tons.	Oits per tons.
From mineral stamped	9791·0	from	1120	= 8·741
Re-treatment	566·1	,,		= ·505
Total	10,357·1	,,	1120	= 9·246

Oits. Ozs. troy. Tons. Oits. Ozs. troy per ton.
Or 10,357·1 = 1194·0050 from 1120 = 9·246 or 1·0660

The foregoing is a very good gold return from the amount of mineral treated, the standard being rather above the average.

Morro Velho, Nov. 1.—MEASUREMENT OF DRIVING AND SINKING.—The following gives the particulars of the drivings and sinkings in the mine during the month of October:—

	Fms.	ft.	in.
Driving eastward under roof	1	5	6
,, westward ,,	2	0	8
Vertical sinking of sump in October	1	5	3
Length of excavation from centre of shaft west	10	8	0
,, ,, ,, east	15	0	3
Width of lode in the sump	4	0	7

The above measurements show that very good duty has been done in driving and sinking during the month of October.

There is no change to report in the lode either as to size or quality.

Advices received Dec. 16, per Douro steamer, dated Morro Velho, Nov. 17:—

GENERAL OPERATIONS.—Since previous advices, under date Nov. 11, our general work has been carried on with tolerable regularity, a little diminution having been occasioned in the hauling by the lack of a full supply of mineral for the kibble at B, and the A kibble, *pro tem.*, owing to the position of the stope not admitting of its being hauled quite full over the stope. At present there is a fair supply of water received on the establishment, especially by the Cristaes water course, and average duty is being done, both in the mine and at the reduction department.

PRODUCE FOR OCTOBER.—The gold return for the month of October amounts to 28,724·5 oits. It has been derived as follows:—

	Oits.		Tons.	Oits. per ton.
From mineral stamped	26,745·5	from	3119	= 8·575
Re-treatment	1979·2			= ·634
Total	28,724·7	,,	3119	= 9·209

Oits. Ozs. Tons. Oits. Ozs. troy per ton.
Or 28,724·7 = 3311·4906 from 3119 = 9·209 = 1·0601

The foregoing is the best monthly produce we have extracted since the opening of the mine.

COST AND PROFIT.

The produce being 28,724·7 oits.		
Deduct loss in melting 134·7 ,,		
28,590, at 7s. 9d. per oit.	£11,078	12 6
Cost, less sums received in reduction of the same	4889	0 3
Profit for the month of October	£6189	12 3

This is the largest monthly profit we have gained since the re-opening of the mine. The cost is a little under the average of the last five months; this result under our actual circumstances and working should be regarded as satisfactory.

The force of natives is about the average, and the work performed in the department is satisfactory. Hauling during the week has given an average of 159·60 wagons per diem.

Since the forking of the water on Nov. 4 the sinking has been going on regularly, and very fair duty is being done.

During October the sump has been sunk 11 ft. 3 in. vertically, and the sinking lift lengthened accordingly.

Driving under the roof as follow:—

Eastward	1 fms. 5 ft. 6 in.
Westward	2 fms. 0 ft. 8 in.
Making together	4 fms. 0 ft. 2 in.

MINERAL HAULED, OCTOBER.—Total 4262 wagons, which is an increase of 573 wagons on the quantity hauled in September.

REDUCTION DEPARTMENT.—A better supply of water has resulted in more duty being done by the stamping machinery, more mineral being treated, and better produce extracted. The recovery of gold from the ore reduced has been creditable for the month of October.

Excepting for repairs to the water wheels and certain parts of the machinery the reduction of mineral and treatment of the sand have been steadily prosecuted—3712 cubic feet of sand treated.

GOLD EXTRACTED TO DATE.—The produce for the first division of November, being a period of 10 days, amounts to 9931·6 oits. It has been derived as follows:

	Oits.		Tons.	Oits. per ton.
From mineral stamped	9295·7	from	1129	= 8·223
Re-treatment	635·9	,,		·563
Total	9931·6	,,	1129	= 8·796

Oits. Ozs. troy. Tons. Oits. Ozs. troy per ton.
Equal to 9931·6=1144·9516, from 1129 = 8·796, or 1·0141

This is the produce of 96 heads, working an average of 23·30 hours per diem during the 10 days, giving 993·1 oits. produce per day.

The above shows quite the average yield per ton, though it is not quite so large a daily return as was obtained in the general produce for October.

The following telegrams have been received:—

Nov. 17.—Produce third division (11 days) of October, 11·110 oits.; yield, 92 oits. per ton; produce per diem, 1010 oits.; produce for the month of October, 28·700 oits.; yield, 9·2 oits. per ton. Rains have set in.

Nov. 23.—Produce first division (10 days) of November, 9900 oits.; yield, 8·7 oits. per ton; produce per diem, 990 oits. Profit for the month of October, 6100*l.*

Dec. 8.—Produce second division (13 days) of November, 15,145 oits.; yield, 9·4 oits. per ton; produce per diem, 1165 oits. General work on mine and surface going on well, and satisfactory duty being performed.

DON PEDRO.—Epitome for October: Produce, 4765 oits. at 8s. 6d., 2025*l.* 2s. 6*l.*; cost, 2475*l.* 7s. 1d.; loss, 450*l.* 4s. 7d.

— Dec. 16: The ores continue to be taken from the Canoa and Nos. 6 and 8 shoots. The works in hand have progressed with usual regularity, but the force is still very inadequate to our requirements. The 35 cross-cut is being pushed on, and we are happy to report that the ground continues to be favourable for excavating. The water being drawn from the mine amounts to 19·46 cubic feet a minute. As soon as we can arrange a suitable force preparations will be made, and a new lift of pumps fixed, when sinking will be resumed. Stoping has been carried on with out change to note. Only very little is being done towards exploring, owing to want of force.

SAN PEDRO.—R. M. Kitto, Nov. 2: In the new shaft the water is being kept 14 metres below the 135.—Santa Helena Mine: We had work here, and also in the San Antonio Mine in the past month.—Cuba Mine: I dialed this mine last week, and find we have 20 metres further to drive to cut the big manto. I set a contract here, for two men, to drive 20 metres, at $14 per metre, and I have also set two side levels, to drive on a small manto, with one man in each; they are producing good stones of carbonate of copper. I think it very probable that we shall cut a good run of ore ground in this mountain, as the ore at surface will give a produce of from 12 to 16 per cent. The ore that we are cutting in the cross-cut will produce 30 per cent.; this speaks well for cutting the manto at 70 ft. deep, which is the depth of our cross-cut. I am employing all the people that come, taking out ore from the burrows and from the shallow levels of the San Pedro, so as to have a sufficient number of people ready to work when money comes.

EMMA (Silver).—The secretary informs me that he has just received from the Chairman of the company from New York a telegram to the effect that in addition to the Chancery suit, already pending, the company have commenced an action upon very strong evidence against Park, Baxter, and Stewart to recover $5,000,000.

LONDON AND CALIFORNIA.—Telegram from the agents in San Francisco: Prospects are encouraging at first level, north of Prospect shaft. Vein apparently continues beyond shaft eastward. Mill running 20 stamps. The prospects of the mine are very encouraging.

RICHMOND CONSOLIDATED.—Cablegram from the mine at Eureka, Nevada: Hall, London: Week's run, $56,000; Richmond ore only.

JAVALI.—The directors have advices (Nov. 5) from their manager for two months' working, as follows:—September: Quartz crushed, 872 tons; yield of gold, 340 ozs.; average 7 dwts. 19 grs. per ton. Expenses, 771*l.*; profit, 164*l.*—October: Quartz crushed, 1560 tons; yield of gold, 556 ozs.; average, 7 dwts. 3 grs. Expenses, 642*l.* 4s. 11d.; profit, 757*l.* 15s. 1d.

SIERRA BUTTES.—Result of the working at the Sierra Buttes and Plumas Eureka Mines for November.—Sierra Buttes: Receipts, $36,988; cost of mining and milling, $20,651.—Plumas Eureka: Receipts, $22,990; cost of mining and milling, $14,690.

MINERAL HILL.—Mr. Oakes, superintendent (Nov. 23) writes—The returns from the mines are somewhat better this week, being 50 tons of an average grade of $30 per ton.

CHONTALES.—The directors have advices from Mr. Smeddle, the manager, dated Oct. 5 and Nov. 5, who reports—On account of a heavy flood which occurred last month immediately after our mail agent left, he was unable to cross the Acoyapa river, where he was detained 18 hours, and did not reach San Ubaldo until after the departure of the steamer. During the month of September we have treated 1509 tons of ore, from which we have obtained 229 ozs. of gold, being an average of 3 dwts. per ton; we value the gold obtained at 620*l.* Our total cost for the month has been 547*l.*, leaving a profit of 73*l.* During October we treated 1776 tons of ore, from which we obtained 275 ozs. of gold, being at the rate of a little over 3 dwts. per ton; we value the gold at 737*l.* Cost for month, 640*l.*, leaving a profit of 87*l.* Some of the lighter portions of the pneumatic stamps have been delivered, and it is probable that the whole will be on the ground about the end of November. In San Sebastian Mine, No. 1 level, on the south lode, has passed through the old ground mentioned in my last. The lode is now upwards of 6 feet wide, and worth about 4 dwts. per ton. The lode in Santo Domingo is at present very hard, and about 4 ft. wide. At Estrella the lode has been cut out by a slide. I am about to cross-cut north, and as the ground is letting out a large and increasing quantity of water, I have no doubt we shall again find it.

MALABAR.—G. B. O'Reilly, Nov. 9: Although from the nature of our ground we have had many difficulties to contend with in opening, our progress, which is now directed to reaching the high ridge to the north, has been so far satisfactory. The boulders which have so much impeded our washing appear to run out as we pass the hill, and we hope soon to pass beyond the point. Yesterday's washing begins to show us better gravel, with less boulders, and so far as we can at present judge confirms the idea that we are on a rim of bed rock, which as we now advance appears to be pitching in the north. Mr. Anderson assures me that we shall be soon up with our cut to a point where we intend placing a sluice; when this is effected we shall be able to run continuously on the abundant supply of gravel before us. We shall probably clean up our upper sluice before Christmas, and hope to get a pretty good show for what we have done. As we have washed but little sound pay dirt it is not reasonable to expect a large produce in gold. Mr. Anderson considers that it would be only a loss of time to take up the blocks now.

NORTH AMERICAN (Gold).—D. W. C. Morgan, Nov. 18: We have had water to do some washing. We have cleaned up the flume twice, and obtained gold sufficient to make a bar of 166 ozs. bullion, value (estimated) $3000, which has been sent to mint. The weather has been cold for the past few days, and the water has nearly all dried up. We manage to wash a few hours daily, and I believe shall be able to clear up at the close of the week some $2000 more. The gravel in the yard is yielding fully as well as I expected; it has mainly come from the old ground. New breasts are being opened in the new ground, and two points were prospected last week, giving respectively $1·50 and $2 per load. The ground on the low bedrock seems variable, but I think will average $1·50 per load. The ground in some points still holds much water, but it is thought when the main drifts, No. 4 north and No. 5 south, have been run ahead further they will afford greater advantage in draining the ground below them. These drifts are now being run as fast as possible. The Chinese drifting force is being daily increased, and next week the output will amount to 300 loads daily, and that number will be increased to 400 and 500 loads as soon as possible. The new air-shaft has reached the height of 123 ft., and is making good headway. The roads are practically closed for the season. Our timber contractors succeeded in delivering a sufficient quantity of timber to last through the winter months. All of the other supplies are on the ground. It is quite probable that within the next 30 days more rain will fall, and with the snow now on the ground water will be had for further washing in the yard. The small amount of water we have had already has helped us very much, and a very little more would enable us to wash out gold enough to meet current expenses. The outlook for a good winter is most favourable.

CAPE COPPER.—Progress plans of Ookiep and Spectakel Mines are received. Returns for October:—Ookiep, 860 tons of 31 per cent.; Spectakel, 38 tons of 32 per cent.: 645 tons of ore were sold at public tickeling on the Dec. 8, at an averrge of 17s. 3¾d. per unit, realising approximately 15,800*l.*

— Dec. 16: The Ookiep and Spectakel reports are received. The former continues favourable. Of Spectakel Capt. Tonkin writes—"Our prospects at this mine are just now rather gloomy, but we still have a chance of opening out some good ground in the stope in the back of the 30, north of incline." Progress plans of the Ookiep and Spectakel Mines are received. Returns for October—Ookiep, 860 tons of 31 per cent.; Spectakel, 38 tons of 32 per cent.: 645 tons of ore were sold at public Ticketing on Dec. 8 at an average of 17s. 3¾d. per unit, realising approximately 15,800*l.*

BATTLE MOUNTAIN.—Nov. 26: In the 260 ft. drift, north of the new shaft, the ground is rather slow for progress; it is, however, of a promising character, and the men are working hard. In the stopes in back of the 260 ft. level, north of Cook's winze, the lode produces some ore of good quality. In the 260 ft. drift, south of Cooke's winze, the lode has materially fallen off in productiveness, but will improve I think; it still produces fine stones of ore, and is very promising. The exceedingly large parcels of ore going forward is matter for great satisfaction; the quality has materially improved with the increased depth, and I expect to send forward some rich parcels; what is now raised at the mine will assay here 36·95 per cent., and which bears the initial mark "U." This is being sent forward whilst another rich parcel is being sent up from the mine. There have been 300 sacks raised during the week.

[For remainder of Foreign Mines, see to-day's Journal.]

PRACTICAL SCIENCE—VOUSSOIR ARCHES.

The simplicity and reliability of Scheffler's theory of arches is generally acknowledged by continental architects and civil engineers, and the leading principles of that theory have now been lucidly explained for English readers by Prof. William Cain, C.E., in one of the volumes of Van Nostrand's Science Series,* and is likely to prove especially valuable from the circumstance that the author has taken care to verify the rules given by actual experiment. The principle was first enunciated by the Rev. Canon Mosely, and the amplifications by Herman Scheffler gave it real practical value. In order that the thrust anywhere in an arch in direction, position, and magnitude may be located the principle of least resistance must be considered, and may be illustrated. Let the external forces which act upon a structure be combined into one resultant, P; and let the resulting forces, R, R'... be each decomposed into components respectively at right angles, and parallel to the direction of P. Then will the components of R, R'... at right angles to P be the least that will cause equilibrium consistently with the physical properties of the body or bodies composing the structure. For the sum of the components parallel to P must equal P; but the components at right angles to P are only brought into play from the peculiar disposition of the resisting surfaces of the structure, and there is no need for their further increase after they have caused stability.

The experiments made by Professor Cain were conducted with great care, to endeavour to meet the requirements of an exact science. A gothic arch 14 inch span and 12 by 12 in. rise was cut out of a poplar plank 3·65 thick, consisting of eight voussoirs each 3·65, 2 deep, and 4·08 along their centre line from middle to middle of joint, each voussoir weighing 0·52 lbs. Quite a number of voussoirs were cut out of the same layers of fibres, and those selected that weighed exactly the same: the vonssoir to be tried being hung to one end of a delicate balance beam, with a vonssoir of the standard weight at the other end. The two voussoirs at the crown not being cut out of the same layers of fibres as the others were, shaved off about the middle of the extrados (not touching the joints), so as to weigh exactly one voussoir of the standard weight, and their centres of gravity were found experimentally and found to be at exactly similar points in both voussoirs, so that the entire arch was symmetrical as to the crown. The centres of gravity of the other voussoirs were taken on the arc, a circle passing through the middle of the joints, and for any vonssoir equidistant from the joints bounding that voussoir. The voussoirs whose sides are little inclined this is sufficiently near the truth, and by dividing the arch ring into a sufficient number of artificial voussoirs the result may be made as accurate as desired. Still, as no wood is homogeneous, the results can only be regarded as approximate as compared with the hypothetical homogenous arch, yet is sufficiently near to establish the laws heretofore demonstrated. When this arch was set up the joints apparently fitted perfectly, and on placing a drawing board by the side of the arch and tracing off its contour curves, it was found to be a perfect gothic, whose arcs composing the contour curves were correct arcs of circles described from springing points opposite. A number of rectangular wooden bricks, of exactly one vonssoir in weight, in various sizes were also cut out, as well as half bricks, quarter bricks, &c., and some solid rectangular piers of various dimensions. A voussoir is taken as the unit of weight. In experiments where weights were placed at the top of the arch, an assistant added brick after brick, carefully balancing the load at the top on each side by the finger until the arch reached the balancing point—that is, the point where it stood with the weight, but fell with a slight jarring. The two bottom voussoirs were, when necessary, kept from sliding by two fastening tacks being driven into the board on which the arch rested, pressing against the arch ·03 above the springing line, or so little that it may be disregarded. The board was carefully bevelled at every experiment by a spirit level, and the span kept invariably at 14 in. There was little or no vibration in the room.

That experiments made with such precautions as these for securing accuracy may be safely relied upon cannot be questioned, and the record of them and of the results obtained will be extremely valuable to professional men, and when it is stated that Prof. Cain's experiments illustrate the theory in its application, not only for symmetrical arches but also for unsymmetrical arches, or arches unsymmetrically loaded, the completeness of the treatise, although contained in a very small volume, will be readily judged of.

* "A Practical Theory of Voussoir Arches." By Prof. WILLIAM CAIN, C.E. New York: Van Nostrand, Murray and Warren-streets. London: Trübner and Co., Ludgate Hill.

STOCK EXCHANGE YEAR BOOK AND DIARY.—So large an amount of business is now done in joint-stock companies' shares, and speculators are so constantly changing their investments from one security to another, that the Stock Exchange Year Book and Diary, the object of which is to provide a reliable and inexpensive digest of information relating to public securities and joint-stock companies, will prove of great utility to a very large number of readers. It appears that the amount of the securities known to the markets of the United Kingdom, and of which particulars are given in the year book, is no less than 4,459,459,128*l.*, Government Stocks, representing investments of 3,030,261,594*l.*; railways, 1,115,792,562*l.*; banks (paid up), 96,067,686*l.*; and other companies and securities (paid-up), 217,337,286*l.*; and considerably more than half of these, or about 2,450,000,000*l.*, are actually held in this country. The Editor very truly remarks that the sole claim to usefulness of such a work as this is the correctness of its statements, and that no pains have been spared to secure this all-important consideration. In the case of Government securities, the whole amount of the debts which have to be considered in judging of the probability of the interest being punctually paid, and in the cases of railways and other public companies the names of the directors, offices, &c., and in many instances the purchase-money paid, are carefully given. The volume is altogether an extremely useful and necessary one.

MAGIC INKSTAND.—Magic and mystery being very generally regarded as inseparable from Christmas festivities, the suggestion that the best gift for a Christmas present is one of the neat little boxes containing a magic inkstand seems quite justifiable. The wonders of the inexhaustible bottle have long afforded Christmas amusement, and the cleanliness and portability of ink powder has been known almost as long as ink has been used, so that the happy combination offered in the Inexhaustible Magic Inkstand is sure to meet a favourable reception. The composition from which the ink is produced possesses remarkable colouring properties, and is soluble in cold water; but by a peculiar arrangement in the interior the water dissolving the product can only become, as it were, saturated with it, but without diluting the material or converting it into pulp or syrup. The material acting like a soluble salt, the solution having attained a certain degree of density, it remains stable, without precipitate, and the liquid, always limpid, constitutes an ink of superior character. The supply in a single inkstand is equivalent to many quarts, so that the claim that it will suffice to write a page a-day for a hundred years is probably not excessive. From the simplicity of the magic inkstand no difficulty can possibly arise in its use; it is simply necessary to pour in a little clean cold water from time to time, giving the inkstand a shake so as to permit the water to become saturated with the chemical. The well being tightly packed around with sponge to prevent the crude material yielding the ink coming in contact with the pen. The black ink is of excellent colour, pleasant to write with, whilst a fresh supply can instantly be had wherever water is procurable, and the violet is particularly brilliant, and agreeably scented. The magic inkstand is altogether well worthy of recommendation.

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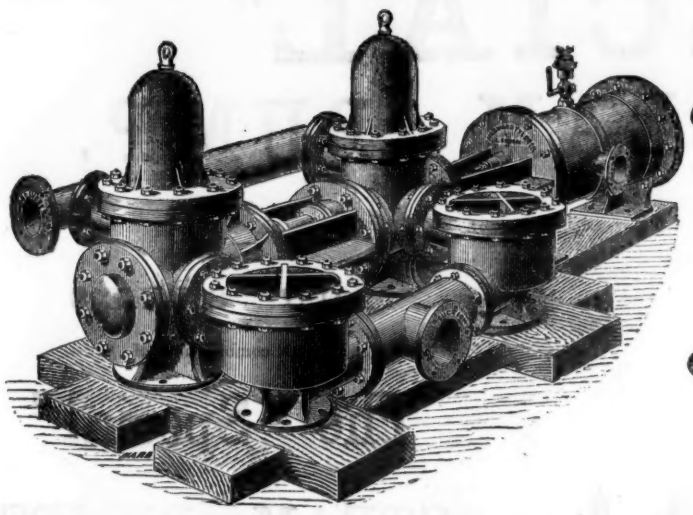

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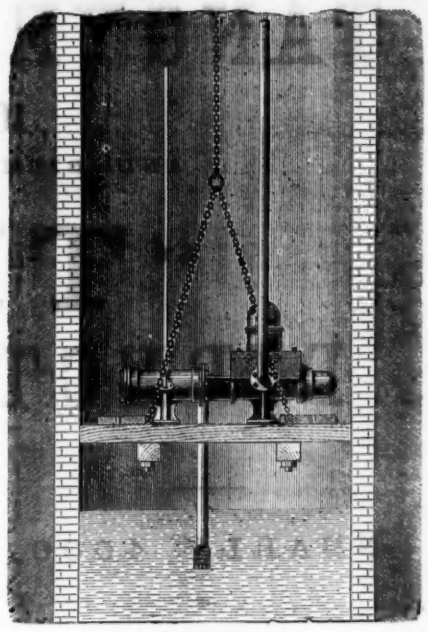

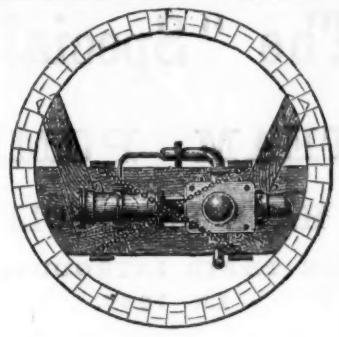

Silver Medal: Royal Cornwall Polytechnic Society, 1872.

Medal for Progress: Vienna Exhibition, 1873.

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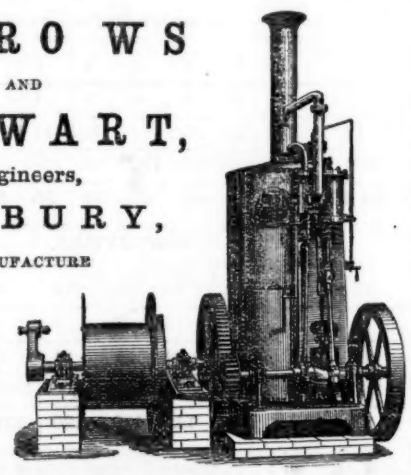

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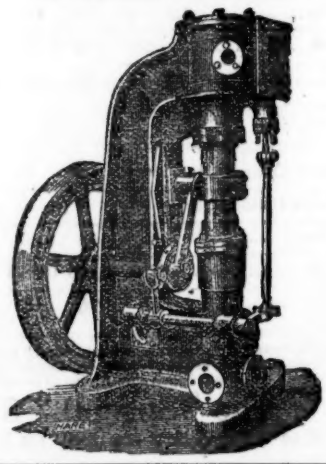

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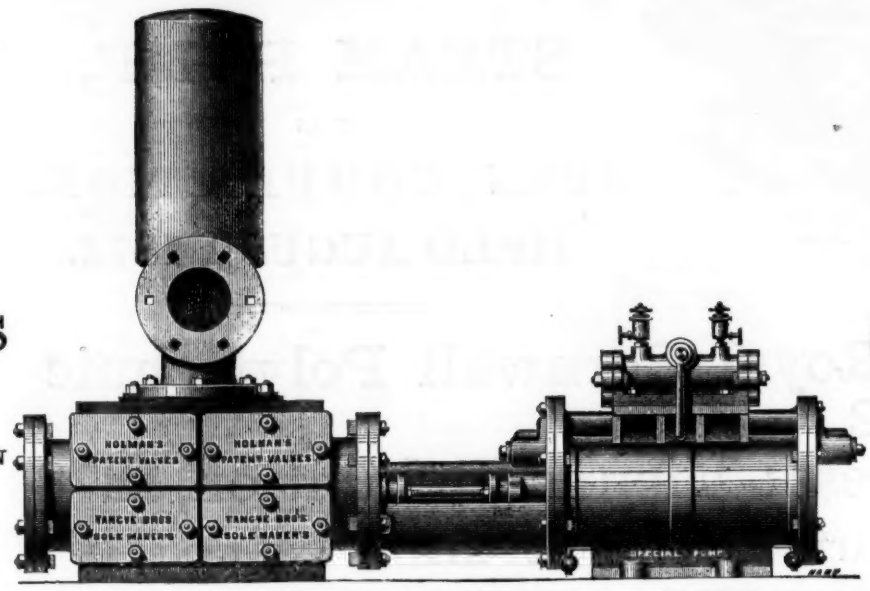

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Length of Stroke .....In.	9	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	18	12	12	12	18	24	12	12
Gallons per hour	680	815	1830	3250	1830	3250	5070	1830	3250	5070	7330	1830	3250	5070	7330	9750	3250	5070	7330	9750	13,000	5070	7330	9750	13,000	16,519	5070	7330
Price .....£	**16**	**18**	**20**	**25**	**22 10**	**27 10**	**32 10**	**25**	**30**	**35**	**40**	**30**	**35**	**40**	**45**	**50**	**40**	**45**	**50**	**55**	**65**	**50**	**55**	**60**	**70**	**85**	**55**	**60**

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Diameter of Steam Cylinder..In.	10	10	10	10	12	12	12	12	12	12	14	14	14	14	14	14	16	16	16	16	16	18	18	18	18
Diameter of Water Cylinder..In.	7	8	9	10	6	7	8	9	10	12	7	8	9	10	12	14	8	9	10	12	14	9	10	12	14
Length of Stroke .....In.	12	18	24	24	18	18	18	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Gallons per hour	9750	13,000	16,519	20,000	7330	9750	13,000	16,519	20,000	30,000	9750	13,000	16,519	20,000	30,000	40,000	13,000	16,519	20,000	30,000	40,000	16,519	20,000	30,000	40,000
Price .....£	**55**	**75**	**90**	**100**	**75**	**80**	**85**	**110**	**120**	**140**	**110**	**120**	**130**	**140**	**160**	**180**	**140**	**150**	**160**	**180**	**200**	**190**	**200**	**220**	**240**

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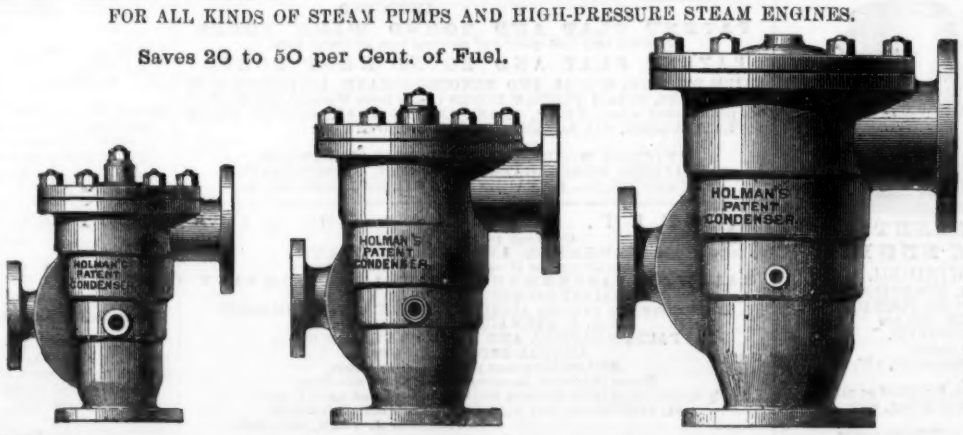

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MORLEY COLLIERY, WIGAN, October 16th, 1874.

Messrs. TANGYE BROTHERS AND HOLMAN.

GENTLEMEN,—I have great pleasure in recording my entire satisfaction with the working of the Holman's Patent Steam Pump Condenser which you have supplied to us. The complete condensation of the steam is, apart from its value in the strict economic sense, a most valuable feature in the drainage of underground workings. The perfect manner in which this important result is accomplished by your Condenser is extremely creditable to you, and merits the thanks and commendation of the Mining Engineer. When we start the "Special" Steam Pump the Condenser commences working automatically, and maintains a constant vacuum of 10¾ lbs. per square inch, even when we run the Pump upwards of 80 strokes (106 feet) per minute. It may perhaps be interesting to you to know that when we were running the Pump at 84 strokes (168 feet) per minute, the steam gauge indicating a steam pressure of 36 lbs. per square inch, 80 yards from the Pump, and the Condenser vacuum gauge on the exhaust pipe indicating a steady vacuum of 21½ inches, I turned the exhaust steam from the Condenser into the atmosphere, when the speed at once fell to 44 strokes per minute. This experiment, several times repeated, shows the Condenser under the conditions given to have increased the efficiency of the Pump by as much as 95 per cent. The working economy thus shown is really so great that the cost of the Condenser must be saved in a very short time. (Signed) J. THOMPSON.

Price from 30s. to 40s. per inch diameter of Steam Cylinder, according to the relative Diameter of Pump for which Condenser is required.

Printed by RICHARD MIDDLETON, and published by HENRY ENGLISH (the proprietors), at their offices, 26, FLEET STREET, E.C., where all communications are requested to be addressed.—*December 19, 1874.*